DOCUMENT RESUME

ED 470 779 CE 084 081

AUTHOR	Bates, P.; Bertin, I.; Huws, U.
TITLE	E-Work in Ireland. IES Report.
INSTITUTION	Sussex Univ., Brighton (England). Inst. for Employment Studies.
SPONS AGENCY	European Commission, Brussels (Belgium).
REPORT NO	IES-R-394
ISBN	ISBN-1-85184-322-1
PUB DATE	2002-08-00
NOTE	79p.; Funded under the Information Society Technologies Programme, European Commission. For more information on the EMERGENCE (Estimation and Mapping of Employment Relocation in a Global Economy in the New Communications Environment) project, see http://www.emergence.nu, ED 452 400, ED 455 416 and ED 464 205.
AVAILABLE FROM	Grantham Book Services, Ltd., Isaac Newton Way, Alma Park Industrial Estate, Grantham NG31 9SD, United Kingdom (free). Web site: http://www.employment-studies.co.uk. For full text: http://www.employment-studies.co.uk/pdflibrary/ 394.pdf.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS
DESCRIPTORS	*Communications; Comparative Analysis; Definitions; *Employment Opportunities; *Employment Patterns; Foreign Countries; Geographic Location; *Information Technology; Internet; *Labor Needs; Labor Supply; National Surveys; Occupational Mobility; Occupations; Small Businesses; Tables (Data); Technological Advancement; *Teleworking; Trend Analysis; Work Environment; World Wide Web
IDENTIFIERS	European Union; Information Sector; *Ireland; Outsourcing

ABSTRACT

Electronic work (E-work) in Ireland was examined through a comparison of survey results from 301 Irish companies with 50 or more employees with averages for the 18 European countries, including 62 in the knowledge sector, and a subsequent survey of 100 smaller companies. Findings from other Irish surveys examining e-work were also considered. Compared with the rest of Europe, supply and demand for e-work in Ireland proved modest. However, Ireland showed strong levels of supply of e-work by small firms. Smaller Irish companies were more likely to use fully home-based e-workers, whereas larger companies were more likely to use multilocational e-workers (workers who alternate between home and office or work from multiple locations). The demand for e-work that is outsourced to individuals who are not employees ("e-lancers") is also lower than in the other countries examined (8% versus 15%). The demand for e-workers located in back offices or telecottages in Ireland is well below the European average, as is the level of e-work outsourced to companies. It was concluded that individual forms of e-working will likely grow faster than in some other European countries. (Forty-nine tables/figures are included. Eight supplementary tables and summaries of the results of four other Irish surveys on demand for e-work are appended.) (MN)

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E-work in Ireland

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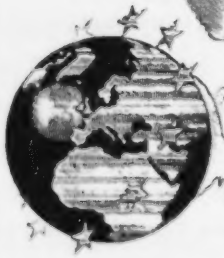

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Report 394

CE064 081

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E-work in Ireland

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Acknowledgements

The authors would like to express their gratitude to a number of people for their contributions to this report. First, we would like to thank the Department of Enterprise, Trade and Employment and the Irish E-work Action Forum, for their support of the project. We would also like to thank Judy Morrell and Karen Cutts at NOP and Siobhan O'Regan and Andy Davidson at the Institute for Employment Studies in the UK for their contributions to fieldwork, data analysis, editorial and design work on the report. For contributing background information, we are also grateful to Paula Carey, research officer, ICTU (Irish Congress of Trade Unions); Dr Paul McGrath and Dr Maeve Houlihan, Department of Business Administration, University College Dublin; Gerard O'Neill, Amárach, the Danish Technological Institute and HK Danmark; Anne Coughlan, IBEC Research and Information Services; Ulrike Hotopp, Department of Trade and Industry, UK; Joanne Pratt, Joanne Pratt Associates, US; Nicola Tickner, Labour Markets Statistician, Central Statistics Office; Dr Margret Fine-Davis, Research Unit, Centre for Gender and Women's Studies, Trinity College Dublin, and Graham Vickery, OECD.

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Brighton, Cork and London, August 2002

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Introduction

A wide range of activities that involve processing information can now be located anywhere in the world – as long as the appropriate information and communications infrastructure exists, and workers with the right skills can be found. This phenomenon has come to be described as e-work.

E-work has often been stereotyped as full-time, ICT-mediated homeworking by female employees. In reality there are many different types of e-working, ranging from large, transnational contracts between organisations to local use of self-employed 'e-lancers'. E-working also facilitates various types of business outsourcing, an issue that has previously received little attention. It is a subject of particular interest for Ireland because of the extremely open nature of the Irish economy, which makes this type of outsourcing both an opportunity and a threat.[1]

To what extent are Irish organisations making use of this potential to relocate work? Which remote sites are being selected? What are the criteria used for selecting them? How does Ireland compare with other European countries in its use of e-work? And is Ireland an attractive destination for e-work originating from organisations in other countries?

These are some of the questions addressed in this report, commissioned by the Department of Enterprise, Trade and Employment in Ireland within the scope of the EMERGENCE project.

Unfortunately such questions are extremely difficult to answer using current information. Most existing statistics are designed to collect information on employment which is anchored to a single spot and to track the physical movements of 'real' goods. They are

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[1] 'We have positioned ourselves as 'hub', if you will, between Europe and the global marketplace and this is reflected in the fact that we trade 153 percent of our GNP' Tanaiste (Deputy Prime Minister) Mary Harney, 20th November 1997.

Ireland ranks second in the OECD index of openness to merchandise trade (Ernst & Young FastFacts 2001), 6th in the Cato Institute index of economic freedom 2001, equal 1st with Luxembourg in the World Bank index of financial openness (2001) and 5th in the Cato Institute index of trade openness (1998).

unsuitable for monitoring the elusive flows of electronically-transmitted services, and untethered 'butterfly' jobs.

The EMERGENCE[1] project was set up with funding from the European Commission's Information Society Technologies (IST) programme to map and measure e-work. As part of its work, EMERGENCE carried out a survey of e-work in over 7,000 establishments with more than 50 employees throughout the EU, together with Hungary, Poland and the Czech Republic. This report draws out the results of the main survey where they relate to Ireland and combines these results with those of an additional survey of 100 smaller establishments[2] in Ireland in the knowledge sector, commissioned by the Department of Enterprise, Trade and Employment. Comparisons are made with the results of a similar survey of 108 smaller Danish establishments also in the knowledge sector.

Results of other surveys carried out in Ireland are reviewed in the light of the EMERGENCE surveys.

This study was carried out by collaboration between the Institute for Employment Studies in Brighton, UK, NOP Business and Financial Research in London, UK and Imogen Bertin, Cork Teleworking, Ireland.

Further information on the EMERGENCE project can be found on http://www.emergence.nu

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1 EMERGENCE stands for Estimation and Mapping of Employment Relocation in a Global Economy in the New Communications Environment. Between 2000 and 2003, research partners in Australia, Austria, Belgium, Canada, Ireland, Germany, Hungary, Italy, Sweden and the UK, with associates and subcontractors in many other countries are undertaking a range of related research activities, full details of which can be found on http://www.emergence.nu.

2 That is, establishments with fewer than 50 employees. An 'establishment' is the physical site at which the investigated activities take place.

Executive Summary

Ireland has often been presented as a country with strong drivers towards high levels of e-working, including a young workforce, a large ICT sector, a proactive government that promotes e-working, high business property prices and urban traffic congestion.

Two sets of data on e-work in Ireland are analysed in this report. The first compares large Irish companies[1] with over 50 employees against European average figures. These figures are subdivided into companies in the knowledge sector, and those outside the knowledge sector. The second set of data looks at small Irish companies in the knowledge sector with fewer than 50 employees and compares these to similar companies surveyed in Denmark.

The results of these surveys indicate that compared with the rest of Europe, supply and demand for e-work in Ireland is modest. However, there is one important exception to this: Ireland shows strong levels of supply of e-work by small firms in the knowledge sector.

For all the different forms of e-working investigated through the EMERGENCE surveys, demand in Ireland is below average European levels. Within Ireland, demand is higher in small knowledge sector companies (46%) than in large companies in the knowledge sector (43%) or large companies not in the knowledge sector (26%).

The picture is much the same on the supply side among larger firms – consistently below the European average figures. Some 23% of large Irish companies in the knowledge sector supply services through e-working. Among large Irish companies not in the knowledge sector, the figure is 11%. However, among small Irish companies in the knowledge sector, over half (57%) supply services through e-work.

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[1] Throughout this report, the term 'company' is used to mean an 'establishment', ie the physical site at which the investigated activities take place, rather than an 'enterprise', which may carry out activities in a number of locations. See section 3.1 for further information on this issue.

It may be tempting to dismiss these results as a function of Ireland's small domestic market size, or of the survey methodology. However, comparison with the results of the Danish survey of small knowledge sector companies shows a considerably higher level of demand and supply of e-work in Denmark than in Ireland. It should be noted, however, that Denmark has the highest levels of e-work in Europe. A lower level than Denmark may nevertheless be significantly above the European average.

For one business function small Irish knowledge sector companies actually exceed the Danish figures – that function is the supply of design, editorial and creative services.

These results, which may at first seem surprising, are consistent with the low levels of individual forms of e-working recorded previously by European general population surveys such as Eurobarometer, ECaTT and the European Survey of Working Conditions.

E-work by individuals

- 5% of small Irish companies in the knowledge sector use fully home-based, employed e-workers compared to 1% of large Irish companies in the knowledge sector and just over 1% of large Irish companies not in the knowledge sector.
- 5% of small Irish companies in the knowledge sector use multilocational e-working employees compared to 12% of large Irish companies in the knowledge sector.

There is a distinction between these two forms of e-working that is size-dependent. Smaller companies are more likely to use fully home-based e-workers, while larger companies are more likely to use multilocational e-workers (those who alternate between home and office or work from multiple locations).

This distinction is also seen in the UK Labour Force Survey results and in the parallel EMERGENCE survey of smaller Danish companies. It is a slightly more complex picture than is usually reported in surveys of teleworking, where the trend observed is simply that larger companies are more likely to have teleworkers.

The demand for e-work that is outsourced to individuals who are not employees ('e-lancers') is again lower in Ireland. Large Irish companies in the knowledge sector report 8% using e-lancers compared to a European average of 15%. Large Irish companies outside the knowledge sector report just 3% use of e-lancers compared to a European average of 11%. Among small companies, 13% of Irish companies in the knowledge sector use e-lancers compared to 16% in Denmark.

Comparative European figures published by Eurostat indicate a number of factors that may contribute to the low levels of individual forms of e-work in Ireland. These include:

- Low penetration of ICTs (PCs, telephone lines, Internet connections).
- A combination of age group and education level factors in the Irish labour force which do not closely match the profile of e-workers reported in other countries (those aged 30-49 with third level education).
- Low participation of women with children in the labour force.

E-work in shared premises

The level of demand for e-workers located in back offices or telecottages in Ireland is well below the European average. Direct comparison the Irish and Danish surveys of small knowledge sector companies shows that 5% of Danish small knowledge sector companies use employees in telecottages compared to none in Ireland, while 14% of Danish small knowledge sector companies use employees in remote back offices, compared to 2% in Ireland.

One explanation for this low level of demand is that Irish companies are more likely to *be* subsidiaries than to *have* subsidiaries – Ireland is a destination for e-work rather than a source. This supposition is supported by the higher than average number of large companies in Ireland that are 'branches' (subsidiaries) of other companies.

Where e-work is outsourced to companies, again the Irish level of demand in large firms in the knowledge sector (33%) is lower than the European average (40%). The level is lower again for large Irish firms not in the knowledge sector (23%). For small companies, 33% of the Irish sample report e-outsourcing to other companies, while the Danish sample report 46% e-outsourcing. Irish companies in the knowledge sector, both large (11%) and small (19%), are more likely than their European (7%) and Danish (9%) counterparts to choose to source e-work from other countries.

For e-outsourcing to call centres, the Irish figures are similar to European averages, and if anything slightly higher, probably reflecting the importance of the pan-European call centre sector in Ireland.

Comparative European figures published by Eurostat provide some possible causes for the relatively low levels of demand for e-outsourcing.

- While Ireland has a large ICT sector, about 50% of employees in this sector are in manufacturing jobs unlikely to be suitable for e-work.
- A low proportion of Irish employment is in the service sector, where e-working is more likely to be found.
- A high percentage of Irish people are self-employed (18%) but many are involved in agriculture and are therefore unlikely to be e-lancing.
- Although a high proportion (51%) of employment in Ireland occurs in large companies, a factor which should increase levels of e-outsourcing, most of these large companies are in sectors like Industry and Energy which are less suited to e-working. The financial services sector is an exception to this and may prove to be a growth area for e-work in Ireland.
- Ireland's geographical separation from the European mainland makes it more expensive to travel to other regions to set up and manage remote e-work facilities.

Future trends

Despite starting from a low base, it seems likely on demographic grounds that individual forms of e-working will grow at a faster rate in Ireland than in some other European countries. Ireland has a young population and a respectable ratio of PCs to students in schools. The proportion of the population that receives tertiary education is rapidly rising. The rate of female participation in the labour force is rising. The percentage of the economy that is in the service sector is also rising. Household sizes are falling, but not sizes of houses, providing more space for home offices.

Most importantly, there is a strong culture of awareness of the individual forms of e-work in Ireland, driven by consistent media interest, an active telework association (Telework Ireland), and the concerted actions of the government's E-work Action Forum in removing barriers to e-working and encouraging awareness.

As long ago as 1996 the *Telefutures* report found that 56% of the general public believed employers should allow a teleworking option, while 34% wanted the opportunity to telework. In 1998 the Eircom-funded study *The shortest route to work* found that 52% of Dubliners would like to telework. The Information Society Commission also found that 52% of the general public were interested in teleworking in 2000, an interest which rose to 82% of early technology adopters. ICTU (2000) found that 39% of workers would like to be able to work from home. The MRBI surveys commissioned by the Department of Enterprise, Trade and Employment have shown a 20% year-on-year increase from 2000 to 2001 in the number of companies using e-workers.

The results of the EMERGENCE survey suggest some productive areas where this high level of interest might be channelled. Ireland

has a substantial financial services sector where the average establishment size is large. This sector may provide opportunities to increase individual forms of e-working and e-outsourcing.

Small companies in the knowledge sector in Ireland also appear to have considerable possibilities to provide export services through e-outsourcing in three areas:

- Design/editorial/creative services
- Software development and technical support
- Customer services

An examination of the main EMERGENCE survey indicates some interesting reasons for choice of location given by companies that outsource their needs for these three services.

In the case of design, editorial and creative services, companies are looking for technical expertise, good reputation, high quality, reliability, a good attitude and creativity. Low cost and a longstanding relationship also figure. Suppliers of these services also consider that being in the same time zone and good marketing are important factors.

For software development and technical support, it is not surprising that technical expertise is by far the most important reason for choice of location in outsourcing. There is also a requirement for quality, reliability and a positive attitude. In this business function there is something of a mismatch between the reasons given by customers and suppliers. Suppliers tend to overestimate the value of their existing customer relationship and the quality of their work, while underestimating the importance of price competitiveness.

For the customer service function, great value is placed on the supply side on quality and good reputation. A relationship of trust, proximity to customers, and technical expertise are valued more or less equally. However, there is a substantial preference on the demand side for customer service functions to be located close to other parts of the company or group.

1. Identifying E-work: the EMERGENCE Approach

The concept of 'e-work' is a relatively new one, replacing a range of different terms such as 'teleworking', 'telecommuting', 'networking', 'digital nomad', 'networking' and 'flexi-space', all of which seek to describe the ways in which new information and communications technologies have made it possible for information-processing work to be carried out at a distance.

Because the aim of EMERGENCE is to capture the entire range of activities that can be carried out in this way, it was necessary to avoid an overly narrow definition whilst still making it possible to capture accurate information.

The EMERGENCE approach involves collecting separately all the information (legal, spatial or technological) which might be required to enable research users to impose their own definitions.

In order to do this, it was necessary to develop a clear conceptual framework so that a research instrument could be designed which was capable of capturing in an unambiguous and disaggregated form each separate ingredient of any potential definition.

To achieve this, it was necessary to break down each activity capable of being relocated using ICTs to the smallest possible delocalisable unit in order to locate its territorial position and characterise the type of delocalisation involved.

This involved several distinct processes:

1. Identifying the unit of analysis
2. Developing a typology of forms of work delocalisation
3. Developing a typology of delocalisable activities
4. Developing a conceptual 'map' of the e-organisation.

1.1 The unit of analysis

A number of recent trends have made it extremely difficult to define precisely what is meant by 'establishment', 'organisation' or 'enterprise'. These include:

- the impacts of mergers, takeovers and demergers
- the development of strategic alliances and partnerships (including 'public-private partnerships' or 'joint ventures')
- the disaggregation of large units into smaller cost-centres or profit-centres and
- the growth of outsourcing.

As a result of such developments, organisations may be scattered over a number of different geographical sites. A survey based on the 'company' or 'enterprise' therefore runs the risk of failing to capture the new geographical division of labour. In order to investigate the extent to which work is being carried out remotely using ICTs, it is necessary to use a geographical unit of analysis, rather than a legally-defined one.

The 'establishment' – the physical site at which the investigated activities take place – is therefore the basic unit of analysis adopted in the EMERGENCE survey. This may be a single building or a group of buildings at the same address. How this is conceptualised in the survey is presented in greater detail below, in section 1.4.

1.2 A typology of forms of work delocalisation

The conceptual framework developed for classifying the various different forms of delocalised work involves drawing two broad distinctions.

The first of these is a legal distinction: between work carried out internally (*ie* by people contracted to work directly for the respondent organisation, normally covered by a contract of employment) and work that is outsourced, and therefore normally carried out under a contract for the supply of services.

The second is a distinction between work carried out by groups of workers on shared premises (normally a building which could be described as an 'office') and that which is carried out by individuals acting in isolation away from 'office' premises. These people might be working from their homes, or working nomadically from a variety of different locations, for all or part of the working week.

These variables are summarised in Figure 1.1: Typology of work delocalisation. When combined, they provide us with a two-by-two cell matrix within which all forms of e-work so far identified by researchers can be grouped.

In the EMERGENCE employer survey, information is collected on each of these forms of working, *provided*:

Figure 1.1: Typology of work delocalisation

		Contractual	
		Internal/employees	**Outsourced**
Type of workplace	**Individualised (away from 'office' premises)**	Employed tele-homeworkers Mobile employees	Freelance teleworkers or mobile workers
	On shared 'office' premises	Remote back offices/call centres Employees working in telecottages or other third party premises	Specialist business service supply companies Outsourced call centres

Source: IES

1. That it is remote[1]: *ie* it takes place at a geographical distance from the establishment where the respondent is based; and
2. That it is telemediated: *ie* that a telecommunications link is used to deliver the work.

Because of the considerable policy interest in the subject of call centres, in the survey an additional distinction is made between remote locations that are call centres and those that are not.

Combining these variables gives nine different categories of e-work:

1. Fully home-based working by employees.
2. Multi-locational or nomadic working by employees.
3. Freelance work carried out away from the premises.
4. Remote work carried out in remote 'in-house' (internally owned) back offices which are not call centres.
5. Work by employees carried out in remote 'in-house' (internally owned) call centres.
6. Work carried out in by employees in telecottages or other remote third-party premises which are not call centres.
7. Work carried out in by employees in telecottages or other remote third-party premises which are call centres.
8. Work outsourced to business service suppliers which are not call centres.
9. Work outsourced to call centres.

[1] The definition of 'remoteness' used in EMERGENCE varies according to the type of eWork. Where individual forms of eWork (homeworking and multilocational working) are involved, 'remote' means any location away from the employer's premises; where office-based forms (such as a remote back office or an outsourced supply) then 'remote' is defined as being outside the NUTS1 region where the establishment is located.

All these forms are separately identified in the EMERGENCE survey, and form mutually exclusive categories at any given point in time. However, these different forms represent *choices* for employers and also, to some extent, for workers. An employer may use more than one of these forms of e-work to carry out any given business function, or may switch from one to another over time. By the same token, an individual worker may also move over the course of a working lifetime between different forms of e-work and conventional work.

1.3 A typology of delocalisable activities

Having identified the different ways in which work may be delocalised, it is then necessary to categorise the kinds of activities involved in this delocalisation.

Most labour market statistics are collected and categorised in relation either to sectors or to occupations. For the purposes of the EMERGENCE study neither of these categories seemed adequate as a framework for data collection and analysis.

As regards sector, technological change is bringing about a convergence between sectors. Additional problems are created by cross-ownership and the involvement of single companies in multiple activities. Occupational categories are difficult to compare across countries, where qualification levels and patterns may be very different and there may be major differences in job design. Furthermore, many of the new 'e-occupations' such as call centre operator or webmaster, are not yet separately identifiable in the statistical codes. This is a particular issue in Ireland, which will not move to collecting data using the NACE rev 2.1/CPA 2002 system until January 2003.

In the EMERGENCE survey it was therefore decided that the most stable and comparable, and therefore the most useful unit of analysis was the generic business function. After an intensive review of the evidence, it was decided that most forms of e-work could be categorised within seven generic business functions.

1. Sales (telemarketing and mobile sales)
2. Customer service, including providing information, counselling and advice
3. Data processing, typing and other forms of data input
4. Design, editorial and other forms of creative or content-generating work including research and development
5. Software development, maintenance and support
6. Accounting, debt collection and other financial services
7. Human resources management and training.

When combined with the nine possible forms of e-work, these seven categories give a total of sixty-three possible combinations of e-work which may be used by any given organisation.

1.4 A conceptual 'map' of the e-organisation

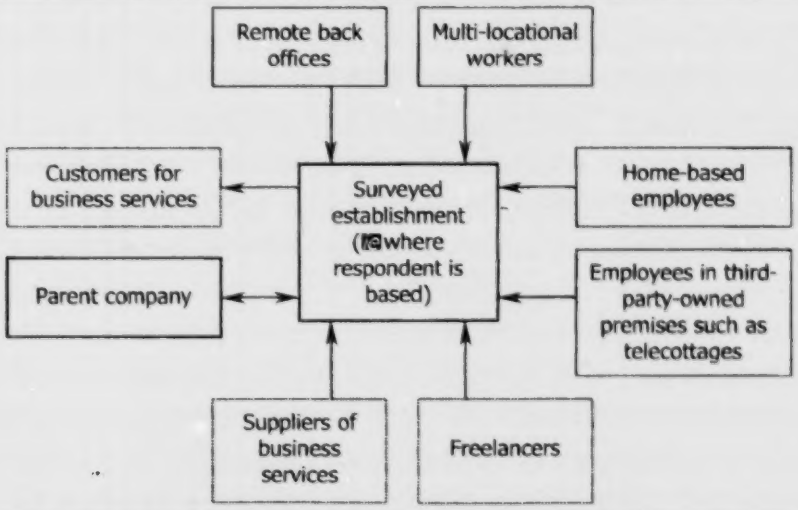
Section 1.1 described the basic unit of study in the EMERGENCE survey as the 'establishment'. However there are a number of different ways in which this geographical concept may be related to the legal concept of the 'firm' or the 'organisation'.

Figure 1.2 below, shows a conceptual 'map' of the e-organisation which demonstrates diagrammatically all the variables that are captured and mapped in the EMERGENCE survey. As well as the inputs of telemediated work categorised above, this diagram shows the outputs which may be present where the surveyed establishment is a supplier of telemediated business services. In other words it can show both the supply side and the demand side of an outsourcing relationship. In addition, it acknowledges that the establishment surveyed may be a branch or subsidiary of an organisation which has its headquarters elsewhere and to which it supplies information-based business services (or alternatively from which it receives such business services).

By capturing information separately about the location of each of these units it makes it possible not only to identify where in the world each type of e-work is located but also to supply some information about the position in the value chain of any given unit.

In the diagram, the remote partners with more fixed and permanent 'internal' relationships (normally an employment

Figure 1.2: A conceptual map of the e-organisation



Source: IES

relationship) to the respondent establishment are shown in solid boxes; those with external suppliers and customers, which may be regarded as more shifting and contingent, have broken outlines.

In the EMERGENCE survey, the location of each of these units was recorded in each case. However detailed questions about the reason for choosing any particular location or subcontractor were asked only where the unit was located remotely. 'Remoteness' was defined as outside the NUTS1-level region[1] where the respondent is based. Because Ireland is defined as a single NUTS1 region (as are also Sweden, Luxembourg, Denmark and Portugal), in Ireland the term 'remote' implies that activities are located outside the country altogether. Thus e-work occurring in another region of Ireland is not recorded as remote e-work because Emergence is a global study that uses large regions – in this case, the whole country.

A parallel study to the Irish survey of small knowledge sector companies has also been carried out in Denmark (and another is under way in Belgium). The Danish results can therefore be directly compared with the Irish results and should not show any differences resulting from the choice of NUTS1 as the unit of 'remoteness'.

When customers were based outside the region where the surveyed establishment is based, the respondents were asked why they thought their organisation was chosen to supply this service.

This helped to build up a picture not only of the global map of e-work but also of the locational advantages of any given region.

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[1] NUTS stands for Nomenclature of Territorial Units for Statistics and is a reference system for the collection, development and harmonisation of EU regional statistics and socio-economic analyses of the regions.

2. Methodology

The first stage of the EMERGENCE survey involved a survey of companies with fifty or more employees in the 15 EU countries (including Ireland) plus Hungary, Poland and the Czech Republic. The survey covered companies right across all sectors of the economy, but the sample was stratified by country, size and sector. The data were weighted to take into account disproportionate stratification across countries and broad industrial sectors.

Although it was recognised that very small establishments in the knowledge sector, such as design or software companies, might play a significant role in the supply of e-work, it was also recognised that this size category includes a very large number of small firms in other sectors, such as artisanal manufacture, agriculture, retail, catering and miscellaneous services which have very little to do with the supply of e-services. A random survey in this size category would throw up a very high proportion of cases with little or no relevance to the survey and it was therefore decided that a different approach should be adopted in this size category than had been used in the main EMERGENCE survey.

It was decided that for the additional study of companies with fewer than fifty employees in Ireland, the survey would be limited only to those sectors which were likely to be involved in the supply of services, categorised as the 'knowledge sector'.

The categories which were regarded as part of the 'knowledge sector' are shown in Table 2.1. Whilst recognising that this categorisation was by no means ideal, it was felt after much discussion and investigation[1], to be the nearest approximation available within the existing NACE classification scheme.

In all, 301 larger companies were surveyed in Ireland in the main EMERGENCE survey, with a further 100 smaller companies in the

[1] The sectoral composition of the 'knowledge' or 'information services' sector is discussed in Huws U, O'Regan S, *eWork in Europe: Results from the EMERGENCE 18-country Survey'*, Institute for Employment Studies, Brighton, 2001 and in Huws U, *eWork Indicators: a Discussion Paper'*, Institute for Employment Studies, Brighton, 2001.

Table 2.1: The composition of the 'knowledge sector'

Publishing, printing and reproduction of recorded media
Other supporting transport activities
Activities of travel agents and tour operators; tourist assistance activities n.e.c.
Insurance and pensions funding except compulsory social security
Activities auxiliary to financial intermediation
Real Estate activities on a fee or contract basis
Hardware consultancy
Software consultancy and supply
Data processing
Database activities
Other computer-related activities
Research and development
Accounting, book-keeping and auditing activities, tax consultancy
Market research and public opinion polling
Business and Management consultancy activities
Architectural and engineering activities
Advertising
Labour recruitment and provision of personnel
Photographic activities
Secretarial and translation activities
Other business activities n.e.c.
Adult and other education n.e.c.
Motion picture and video production
Radio and television activities
Other artistic and literary creation and interpretation

supplementary survey, making a total sample of 401 companies. Of the 301 larger companies, 62 were in the knowledge sector.

The computer-aided telephone interviews were carried out by NOP Business and Financial from an international call centre in London.

Dun and Bradstreet and *Kompass* business directories were used to identify a sample. In the main survey, these were supplemented with additional information about the Public Administration sector, compiled from national directories.

Data analysis and interpretation was carried out by the Institute for Employment Studies and Imogen Bertin.

3. An Overview of E-work in Ireland

3.1 Overall levels of e-work

Compared with the rest of Europe, the demand for e-work among knowledge sector companies in Ireland is modest. Table 5.1 shows that over four out of ten small Irish knowledge sector companies practice some form of e-work, compared with over half of large European knowledge sector companies. The picture in Ireland varies remarkably little by size although smaller companies were slightly more likely to report demand for e-work.

The main difference in the surveys appears to be between large companies from Ireland and Europe that are **not** in the knowledge sector (Table 3.1). Among this group of companies, those in Europe were nearly twice as likely to demand e-work as their Irish counterparts. These results reflect a number of underlying factors relating to work practices (*eg* home-based working and multi-locational working) and the relatively low need for outsourcing among Irish companies.

It is tempting to dismiss these results as an anomaly produced by small sample size. However, similar surveys of companies (including those with fewer than 50 employees) were carried out by the EMERGENCE project in Denmark. Denmark is a country of similar size to Ireland with a strong tradition of exporting, providing an opportunity for direct comparison. The surveys found that Danish companies show a much higher level of demand for e-work across all sectors than is reported in Ireland.

Comparisons between Ireland and the small knowledge sector study in Denmark are presented in Table 3.2. As can be seen in the

Table 3.1: E-work in Ireland and Europe: all functions and types of e-work (demand side)

	Small co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
%	46	43	53	26	48
Sample size	100	62	1,422	239	5,846

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 100 small establishments in Ireland.

Table 3.2: E-work in Ireland and Denmark: all functions and types of e-work (demand side)

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Denmark	Large co.s not in knowledge sector in Ireland	Large co.s in Denmark (all sectors)
%	46	63	43	62	26	64
Sample size	100	108	62	65	239	281

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Denmark; 100 small establishments in Ireland; 108 small establishments in Denmark. Note that the Danish figures were not analysed to show large establishments outside the knowledge sector separately.

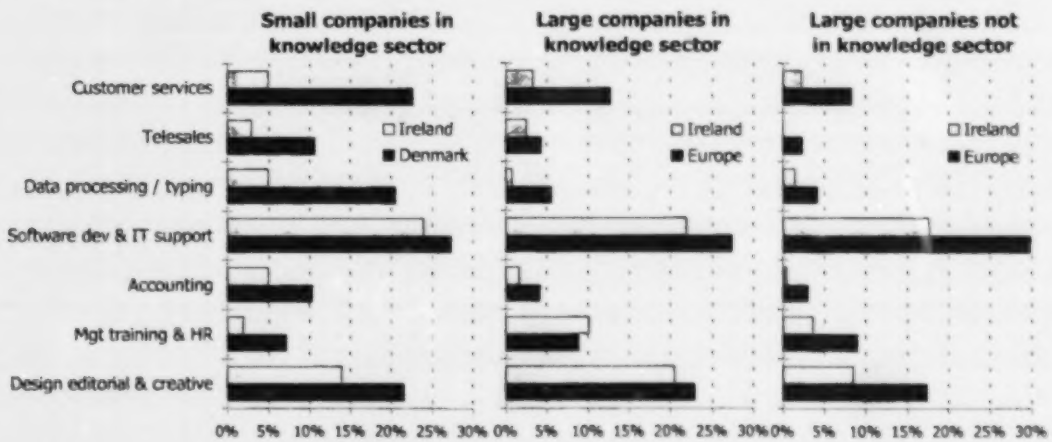
table, irrespective of size or establishment type, Danish companies in general report a higher demand for e-work.

Demand for e-work in Denmark is slightly higher in companies outside the knowledge sector, which may seem surprising. However, the types of e-work used differ between the two sectors. Knowledge sector companies in Denmark are more likely to support individualised forms of e-work such as telehomeworking and multilocational e-working, while companies outside the knowledge sector are more likely to have outsourcing arrangements.

3.2 E-work by business function

Figure 3.1 considers the business functions involved in e-work. For the small, knowledge sector companies, it should be stressed again that most surveys of e-work suggest that Denmark has higher levels of e-working than almost any other country in Europe. The most popular forms of e-work in these companies in Ireland are 'Software development/IT support' (24%) and 'Design editorial

Figure 3.1: E-work demand



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001;base: 7,268 large establishments in Europe; 301 large establishments in Denmark; 100 small establishments in Ireland

and creative functions' (14%). Among small Irish companies in the knowledge sector, 5% reported the use of e-work in the provision of customer services, data processing and accounting.

Levels of e-work across each business function are generally higher among Danish small knowledge sector companies than their Irish counterparts. Again the 'Software development/IT support' and 'Design editorial and creative functions' are well represented, but in Denmark, unlike Ireland, customer services and data processing also record relatively high levels of e-working demand.

For large knowledge sector companies in Ireland and Europe, the overall percentage of companies performing e-work within each function is lower in most cases except design, editorial and creative and management training. The low incidence of e-work within management training and HR in small companies (at 2% compared with 10%) is a reflection of a lower need for formal personnel or HR structures where few employees are present.

In large non-knowledge sector companies in Ireland and Europe, Irish companies reported lower rates of e-work across all business functions.

Five other surveys have been carried out in Ireland looking at individualised forms of e-working by business function[1]. The relevant tables from these surveys are reproduced in Appendix 2. Unfortunately none of these surveys used large randomised samples, and their category definitions for different business functions differ, as well as their definitions of e-working. Two looked at existing e-working, and three at likely demand for e-working. Even so, with the exception of the 1999 ECaTT survey[2], their combined results also indicate that software development/IT support and design/editorial/creative are the business functions with the highest incidences of e-working.

3.3 Evidence from other studies

Overall, these results show a surprisingly low level of demand for e-work. Ireland is often presented as a country with a young workforce, a large ICT sector and a pro-active government that promotes e-working where pressures of property prices and traffic congestion should all act as drivers towards high levels of e-working[3].

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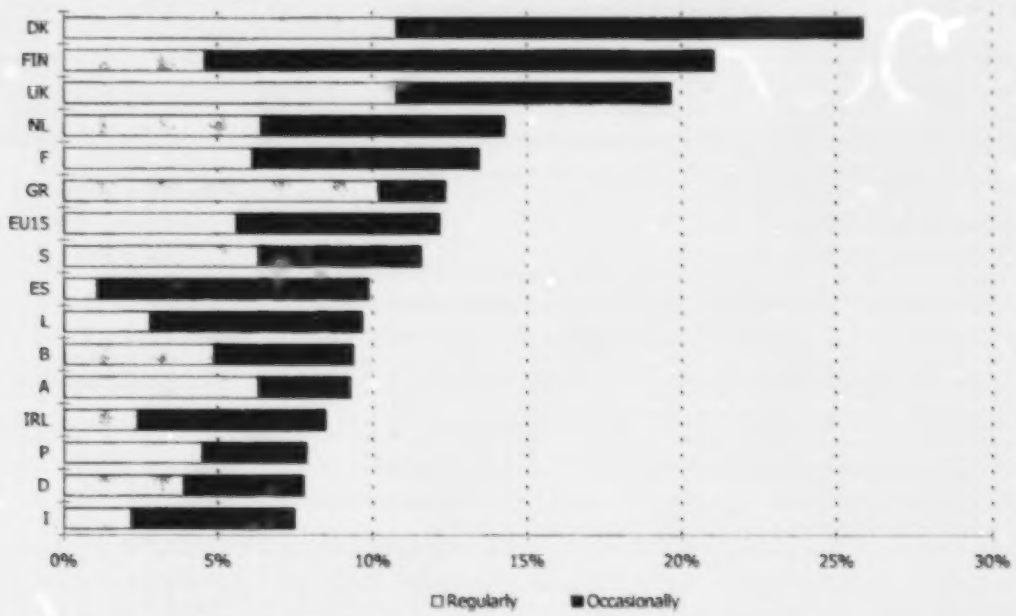
1 Telemart, 1994, Telefutures, 1996, Shortest Route to Work, 1998, ECaTT, 1999 and MRBI 2000, 2001

2 Telework data report (establishment survey) ten countries in comparison, ECaTT project, Empirica, 2000

3 'Telework in Ireland – if not here then where?', *Flexible Working* Volume 5, No. 5, 2000

Figure 3.2: Teleworking prevalence in the EU



Source: Eurobarometer 54.0, 2000. Base 3730 respondents

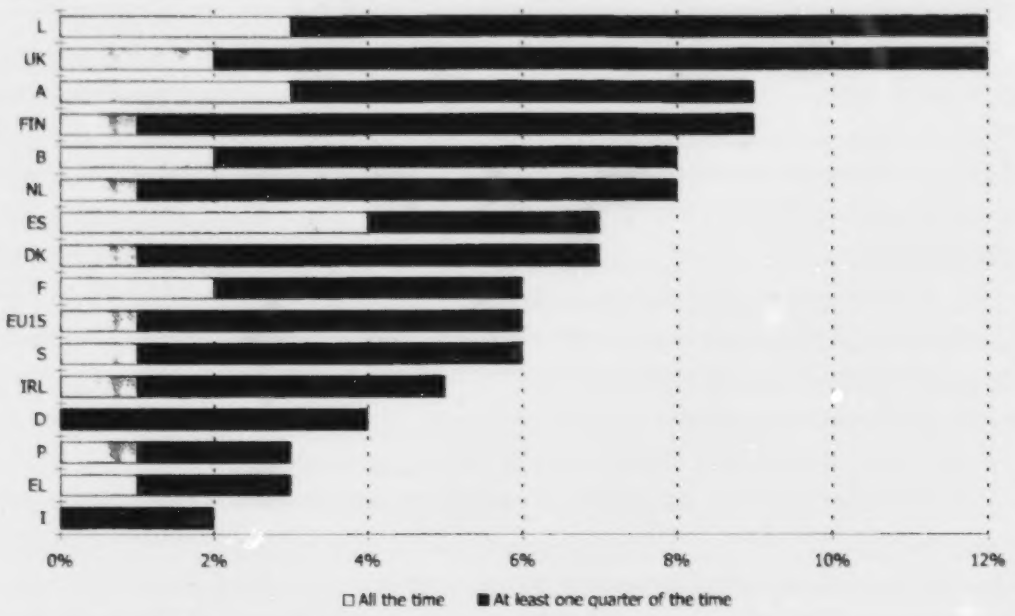
There is some supporting evidence of low levels of e-working in Ireland from general population surveys, researching the individualised forms of e-working (such as telehomeworking). However, these surveys do not tell us about other forms of e-work studied in the EMERGENCE surveys such as outsourcing of ICT-mediated business services to office-type premises.

The Irish element of the Eurobarometer[1] survey on computer use in 2000 was carried out by Lansdowne Market Research who interviewed 1002 Irish people aged over 15 years (the total sample around Europe was 15,600 people). This survey included a question on telework: 'Telework occurs when paid workers carry out all, or part of, their work away from their normal places of activity, usually from home, using information and communication technologies. Do you currently telework, or not? (IF YES) Regularly or occasionally?' The results for Ireland showed one of the lowest levels of regular teleworking in the EU, at 2.4%. The level of occasional teleworking, at 6.1%, was slightly below the EU15 average figure of 6.6% (Figure 3.2).

Six months previously, in Spring 2000, Lansdowne Market Research had also carried out fieldwork in Ireland which involved interviewing 1,502 Irish people aged over 15 years for the Third European Survey on Working Conditions 2000, a project of the European Foundation for the Improvement of Living and

[1] Eurobarometer 54.0, 2000

Figure 3.3: Teleworking from home in the EU



Source: Third European Survey on Working Conditions, 2000

Working Conditions which interviewed a total of 21,703 people around Europe. This survey asked people in work a number of questions including: 'Please tell me, using the following scale, does your main job involve (various options including) telework from home with a PC?' Respondents were asked to specify how much of their time was spent in this way. In Ireland 4% of people reported spending at least one quarter of their time teleworking, while 1% said they teleworked all the time (Figure 3.3).

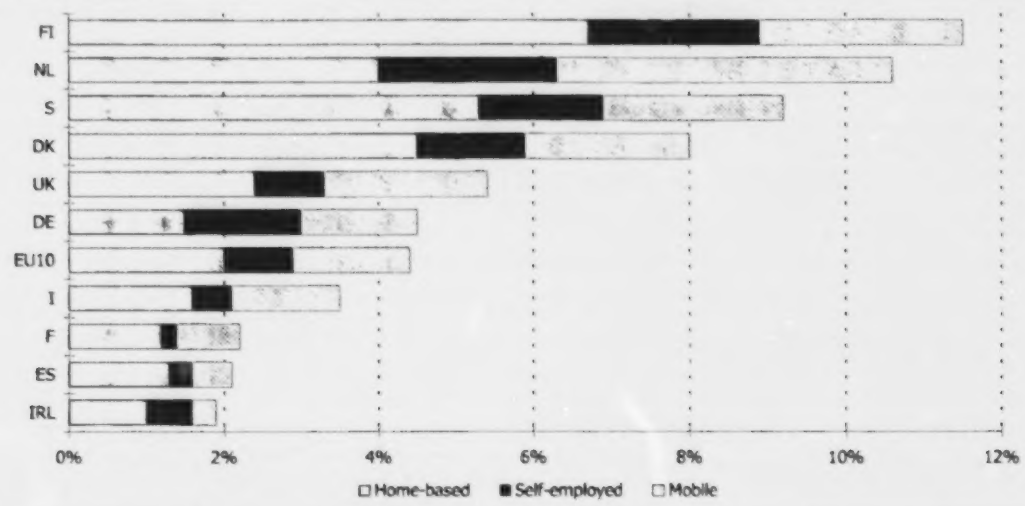
Results obviously vary depending on how the telework question is asked and on the definition of telework used (the Eurobarometer question is more likely to elicit responses from those who are multilocational e-workers, resulting in higher figures). However, in both cases Ireland's level of individualised e-work from home appears to be below the European average. Denmark's levels by contrast are above the European average in both surveys.

The ECaTT general population survey[1] which included a sample of 547 from Ireland, carried out in 1999, also placed Ireland at a low level for different types of regular telework (teleworking at least one day each week).

A clearer picture of the extent of e-working in Ireland among the general population will be available in early 2003, when the

[1] Telework data report (population survey) ten countries in comparison, ECaTT project, Empirica, 2000

Figure 3.4: Types of regular telework as a percentage of labour force



Source: Telework data report (population survey) ten countries in comparison, ECaTT project, Bonn, 2000

results of questions on e-working included in the Central Statistics Office Quarterly National Household Survey for Q3 2002 will be released. These questions will be asked of all persons in employment, and will involve a much larger and more reliable sample size of 39,000 households. They are based on the UK LFS questions on telework which have been asked on an annual basis since 1997.

4. E-work by Employees

4.1 Individualised forms of e-work

4.1.1 Types of individualised e-working

The Emergence survey captures two types of individualised e-work by employees 'fully home-based teleworkers' and 'multilocational teleworkers'. The latter category includes e-work alternating between home and office, and working from multiple locations.

4.1.2 Fully home-based e-work

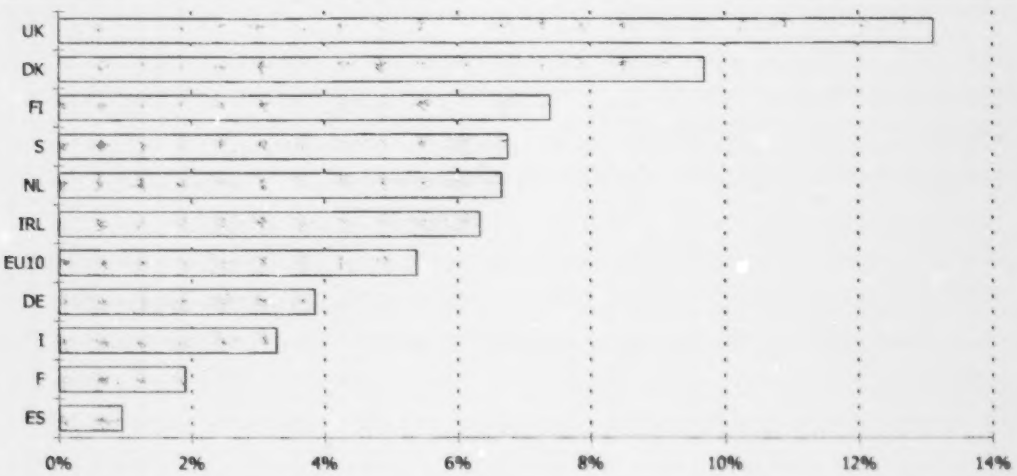
In this category, e-work is carried out all or most of the time at home. This form of e-work is particularly prevalent in small companies in the knowledge sector – with 5% of all companies using home-based teleworkers for at least one function (Figure 4.2). This compares with only 1% of large companies in the knowledge sector within Ireland, and 3% of large knowledge sector companies across Europe. For non-knowledge sector companies the average figure for this form of e-work is 2%.

Other surveys of companies in Ireland have attempted to measure home-based e-working, but the definitions used have not been comparable, and the results obtained often overlap the two categories of fully homebased e-working and multilocational e-working distinguished in the EMERGENCE surveys.

The MAST[1] project survey received responses from 165 managers in large Irish companies with over 1,000 employees in 2000 and found that 0.3% of companies reported using full-time home-based e-working while 6.6% reported using any form of homeworking. The number of workers involved was small (54 in the sample or 0.05% of all workers in the surveyed companies).

[1] MAST project survey presentation, Paul Healy, Work Research Centre, Dublin 2000

Figure 4.1: Companies practising regular permanent home based teleworking, 1999



Source: Telework data report (establishment survey), ten countries in comparison, ECaTT, Empirica, 2000

The ECaTT project carried out a survey in ten European countries including a sample of 347 companies in Ireland in 1999[1]. Note that this is a survey of companies reporting use of e-work (Figure 4.1), rather than the matching ECaTT general population survey reported above in Figure 3.4.

An IBEC survey[2] on pay and conditions in the manufacturing sector in 2000 found that 7% of the respondent companies (members of IBEC) reported the existence of telecommuting or homeworking, and the total number of employees involved was again small (97 out of a total workforce in the respondent companies of 105,074). The question asked in this survey would include some e-workers who fall into the Emergence 'multilocational teleworker' category.

Surveys carried out by MRBI for Enterprise Ireland[3] in 2001 indicated that 12% of 627 companies used e-working. The definition of e-work used was 'work which is normally carried out centrally/office based which is now conducted totally or in part away from that location using computers and modern phone systems' and thus would be likely to include multilocational e-workers. The sample used in this survey was not random but contained a 'booster sample of e-working companies, weighted on the basis of the existing sample' (MRBI, direct communication with the authors, December 2001).

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1 Telework data report (establishment survey) ten countries in comparison, ECaTT project, Empirica, 2000

2 *eWorking*, Anne Coughlan, IBEC Research and Information Services, 2000.

3 *eWorking in Ireland*, MRBI, 2001.

When the survey results were weighted for company size and sector, they indicated that companies with over 50 employees were more likely to have e-workers (36%), those located in Dublin were more likely to have e-workers (18%), those in the computer or IT sector were more likely to have e-workers (33%), and that companies which were supported by Enterprise Ireland were more likely to have e-workers (19%).

Again, the number of full-time employees involved in this survey was small. Of the 12% of companies reporting any e-working, 32% had just one employee e-working, 18% had two employees, 21% had 3-5 employees and 21% had more than 6. Figures for part-time employees were substantially lower again.

A survey of 500 chief executives carried out for the Irish government's Information Society Commission by MRBI in 2000 found that 28% of companies indicated they had employees who worked from home at least once a month. However, for 95% of these businesses, the arrangement involved less than 10% of their employees. Again, the definition used in this survey would amalgamate 'telehomeworking' with the 'multilocational e-worker' category, and in this case could also include employees who do not use any ICT when working at home.

The UK Labour Force Survey figures on telehomeworking indicate that in the UK there has been significant growth in this practice between 1997 and 2001, with the vast majority of the increase taking place in small companies in the private sector[1].

4.1.3 Multilocational e-work

Turning to multilocational e-work by employees, the EMERGENCE survey finds that Ireland has relatively lower levels than the rest of Europe, at 12% across all large knowledge sector companies, compared with a European average of 18% within the same sector. Among the smaller Irish companies engaged in the knowledge sector, only one in twenty reported the use of multilocational e-workers (Figure 4.2).

This picture reflects the findings of other studies by the EMERGENCE project. An analysis of the UK Labour Force Survey[2] found that companies with fewer than 50 employees were more likely to employ fully home-based teleworkers whilst larger companies were more likely to employ multilocational e-workers. The parallel study on e-work in Denmark[3] also found a disproportionately high use of telehomeworking in small companies in the knowledge sector.

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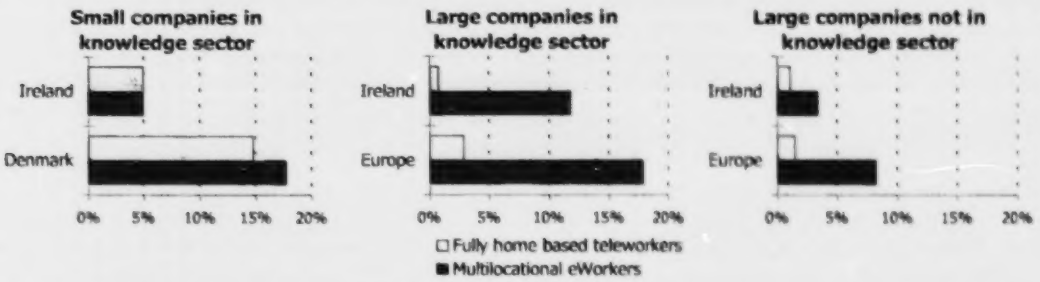
1 Bates P, Huws U, *Modelling eWork in Europe*, IES Report 388, 2002

2 Bates P, Huws U, *Modelling eWork in Europe*, IES Report 388, 2002

3 Huws U, Bates P, O'Regan S, Millard J, *eWork in Denmark*, HK Services.

Figure 4.2: Employers' use of individualised forms of e-work by employees (% of establishments)



Source: : IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland, 108 small establishments in Denmark

There are several possible explanations for this size-related difference. In some cases, the small companies may be micro-enterprises run from the homes of their proprietors or by networks of homeworkers; in other cases the use of homeworkers may be an effect of the relative precariousness of small enterprises which cannot afford extra office space or additional equipment required to give workers a genuine choice of location. It could also be that smaller companies lack a specialist HR officer aware of the advantages of multilocational e-working. The workers may be managed in an *ad hoc* way, without formal negotiation[1]. In the main EMERGENCE survey it was also found that there was a negative association between companies who used e-lancers or multilocational e-workers and those who used telehomeworkers. Those who used e-lancers and multilocational e-workers were less likely to have telehomeworkers.[2]

Some confirmation of this trend of smaller companies using home-based e-workers while larger companies use multilocational workers is available from other sources. Amárach Consultants carried out a survey of 158 SMEs in late 1999 as part of the AIB Business 2010 report[3]. Businesses were asked what options they offered their staff in terms of non-wage commitments like pensions and work options. They responded that 30% already 'offered telecommuting or home-based work' (*ie* the definition was loose and could include non-ICT mediated work). The trend was particularly strong in small businesses (under five staff),

1 Huws U, Teleworking in Britain, 1992. The suggestion that HR professionals have an effect on e-working levels has also been made by the HR community themselves at a number of conferences of employers organisations in the UK and at the Henley Centre *Future of Work* events although there is currently no quantitative supporting evidence available.

2 *Modelling eWork in Europe*, Bates P, Huws U, IES Report 388, 2002

3 *Business 2010*, Allied Irish Bank, 2000. http://www.aib.ie

Table 4.1: Use of remote workers or e-workers by company size

Establishment size	<50	50-99	100-249	250-499
Remote or e-workers (%)	26.5	31.3	42.9	53.3
Size of sample	68	32	42	45

Source: IBEC Telecommunications User Group

Table 4.2: Use of remote or e-workers by region

Establishment location	Dublin	Outside Dublin
Remote or e-workers (%)	43.1	24.0
Size of sample	72	75

Source: IBEC Telecommunications User Group

formed less than five years ago, in the business services sector, based in Dublin and carrying out some exporting.

A Gartner Group survey[1] of 190 companies in IBEC's Telecommunications User Group (*ie* companies with a business that has a special interest in telecommunications services) found that 37.4% responded yes to the question 'Do you have remote/ e-workers?'. This survey did not distinguish between multilocational and home-based working, but did show a clear trend for larger companies to be more likely to report use of remote workers or e-workers (Table 4.1).

The same survey showed that, for the telecommunications sector, large, service sector companies located in Dublin are most likely to have e-workers (Table 4.2).

The ECaTT European establishment survey[2] also looked at two types of e-working which fit the EMERGENCE multilocational category -- home based teleworking that alternates between home and office (rather than being mainly home-based), and mobile teleworking (Figure 4.3).

The ECaTT survey also looked at the size of companies practising telework (Figure 4.4), but did not differentiate the results according to the type of telework, and included supplementary, or occasional telework as well as regular telework. As a result, only a general increase in the incidence of teleworking as establishment size increases is seen; a trend that has been reported in a wide variety of telework surveys carried out in different global locations.

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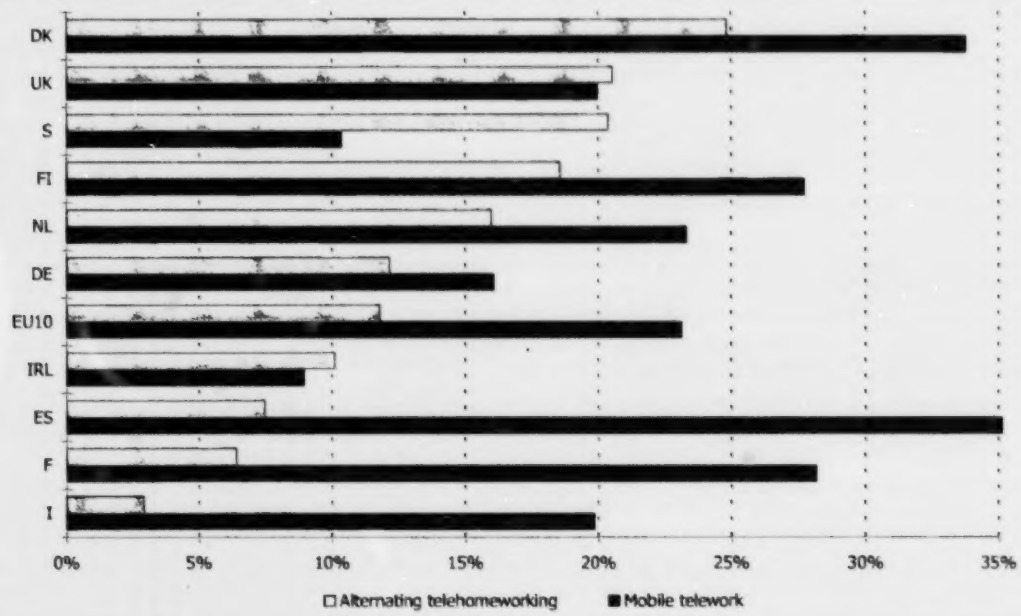
1 *Evaluation of Business User Demand for Telecommunications in Ireland*, IBEC Telecommunications User Group, 2001

2 Telework data report (establishment survey) ten countries in comparison, ECaTT project, Empirica, 2000

Figure 4.3: Companies practising regular multilocational teleworking, 1999



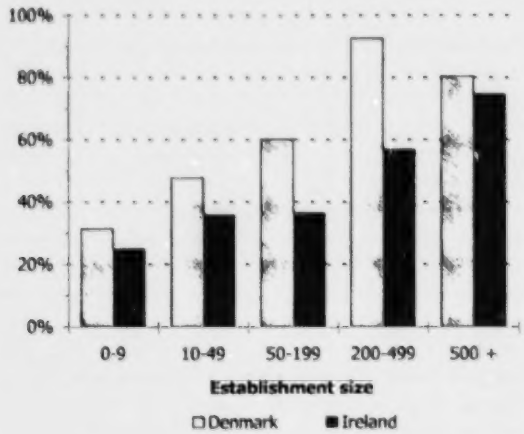
Source: Telework data report (establishment survey, ten countries in comparison), ECaTT, Empirica, 2000. Note the two categories are not presented as additional since a single establishment can use more than one type of multilocational e-working.

Table 4.3: Use of remote or e-workers by sector

Establishment sector	Manufacturing	Distribution	Services
Remote or e-workers (%)	29.1	26.7	59.3
Size of sample	68	32	42

Source: IBEC Telecommunications User Group

Figure 4.4: Companies practising any form of telework by size, 1999



Source: Telework data report (establishment survey, ten countries in comparison), ECaTT, Empirica, 2000.

4.2 Why might individualised e-working be at a relatively low level in Ireland?

4.2.1 Factors determining e-work penetration

In considering the low apparent levels of all types of individualised forms of e-working in Ireland, it may be useful to look at some of the pre-requisites that must be in place before e-work becomes a feasible alternative. The *Teleworking and Globalisation* report[1], a precursor to the main EMERGENCE survey, examined existing research to establish some of these factors, summarised below.

- High proportion of population living in urban areas
- Good fixed telecommunications infrastructure, high numbers of fixed telephone lines
- High numbers of mobile telephone subscribers
- Available housing space
- Reliable electricity supplies
- High education levels
- High levels of IT specialists and available IT training
- Suitable management culture
- Suitable language skills.

In addition, there must be work tasks available suitable to e-working. In this section a number of factors relating to conditions in the general population are examined. In section 5.2, sectoral, occupational and business culture effects on the availability of suitable e-working and e-outsourcing tasks are examined. The position of Denmark in these comparisons, where the EMERGENCE SME survey has also been carried out and showed considerably higher e-working levels than those found in Ireland, is of particular interest.

Two issues can be disposed of immediately. In general Ireland has a reliable electricity supply, and as English is the working language, wide opportunities for e-working involving English-speaking regions of the world are available.

4.2.2 The role of ICT

There does not appear to be any direct relationship on a national basis between levels of e-working and levels of urbanisation, although this might be expected for reasons of ICT infrastructure alone. The Teleworking and Globalisation report notes:

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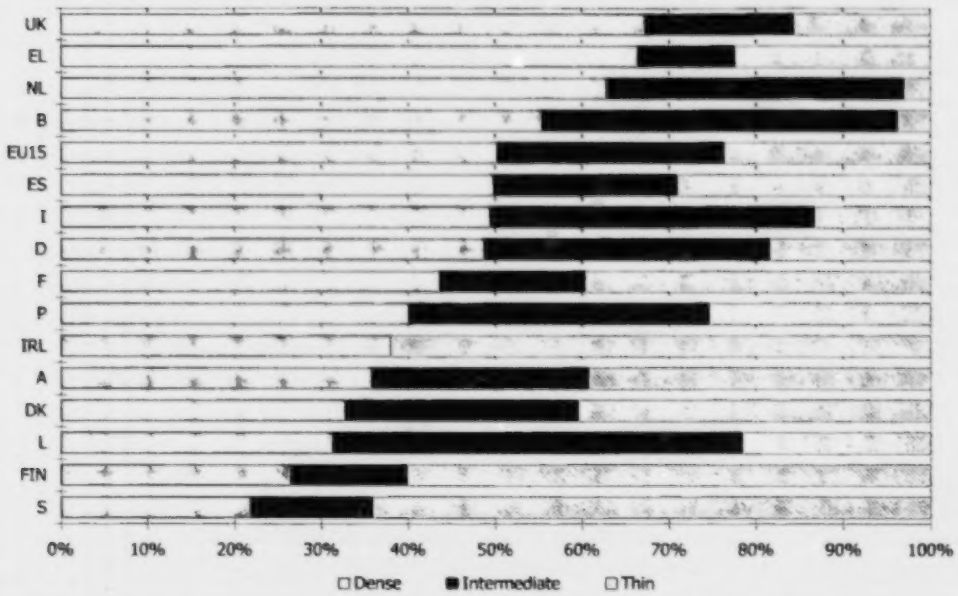
[1] *Teleworking and Globalisation*, Huws U, Jagger N, O'Regan S, Institute for Employment Studies, 1999

Figure 4.5: Population by degree of urbanisation in EU member states 2000



Source: Eurostat European Labour Force Survey. Note that no figures are given for Ireland relating to areas of intermediate population density

> *'All the countries with a recorded level of teleworking are also countries in which over three quarters of the population live in cities, although the international mean is 52.38%. It is not possible, however, to detect a close correlation between rurality and low prevalence of teleworking although the higher proportion of urban population in the UK and in Sweden than in other EU countries may offer a partial explanation for the higher incidence of home-based teleworking there than in France, Italy or Spain. This would not, however, explain the relatively low prevalence of home-based teleworking in Germany, which at 86.7%, also has a very high proportion of its inhabitants in urban areas.'*

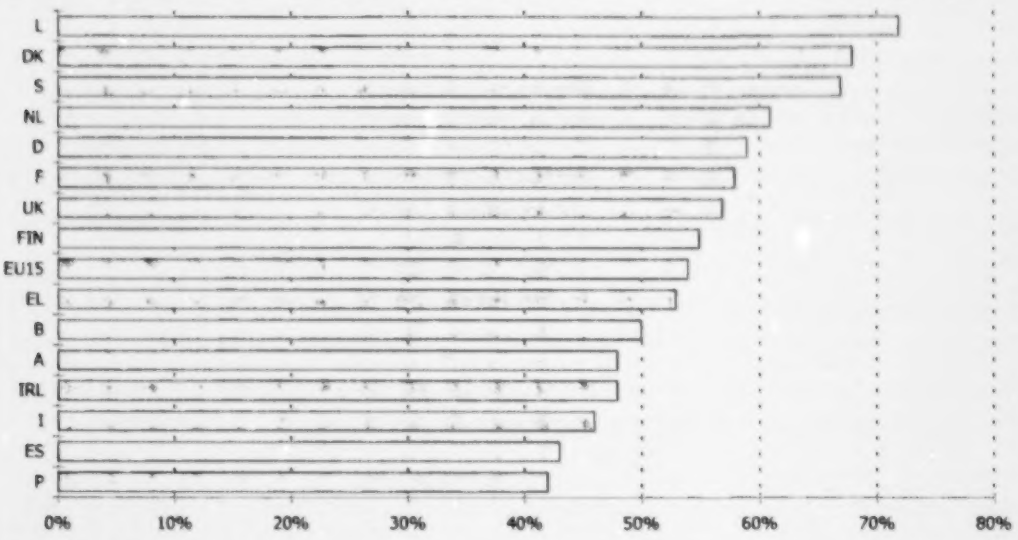
It is also worth noting that several of the Nordic states with low levels of urbanisation have very good telecommunications infrastructure even in areas of sparse population, and high reported levels of e-working, suggesting that ICT infrastructure and penetration rather than urbanisation may be the key factor.

The density of fixed telephone lines in Ireland is fairly low in comparison to other European countries, and particularly so when compared to Denmark (Figure 4.6).

Penetration of mobile phones in Ireland is similar to that in Denmark (Figure 4.7). Recent figures from the industry body ICT Ireland indicate that mobile phone penetration in Ireland has now reached 68%.[1] It should be borne in mind that mobile phones are

[1] ICT Ireland brochure, IBEC, 2001

Figure 4.6: Number of fixed telephone lines per 100 inhabitants in EU member states 1999

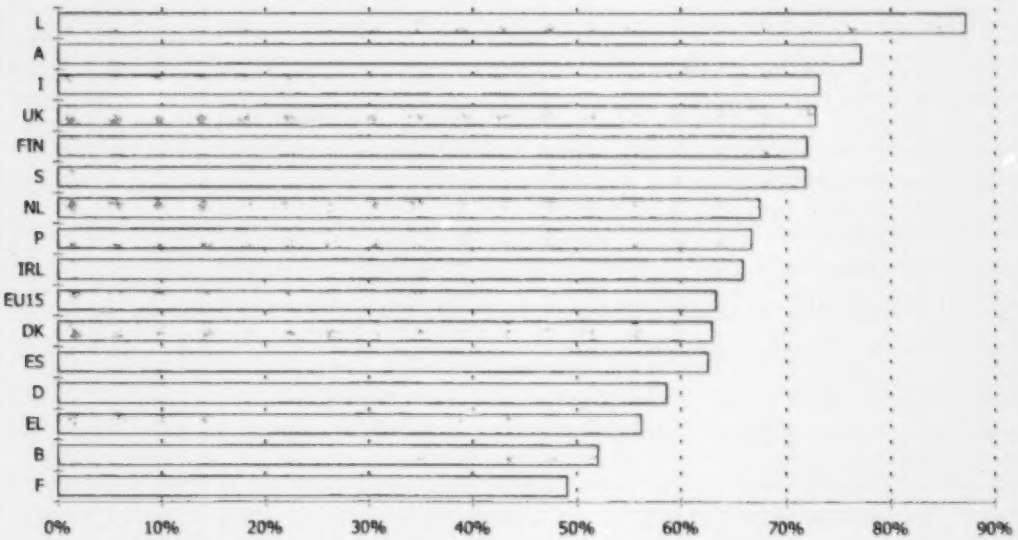


Source: Business in Europe Statistical Pocketbook, Eurostat, 2001

heavily used for social as well as work communication, and that this indicator may not be directly related to the level of multilocational e-working.

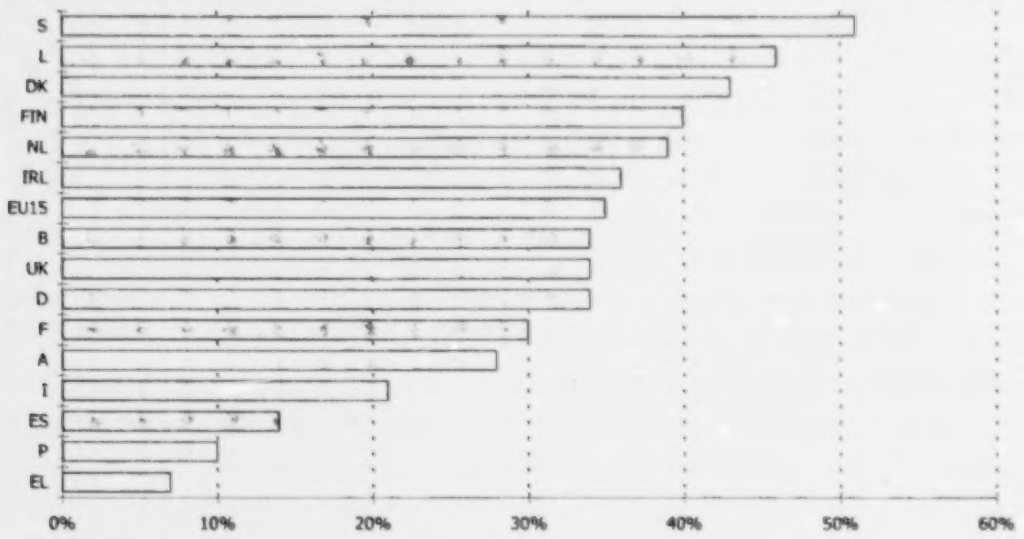
The figures for PCs per 100 inhabitants are sourced from equipment manufacturers and are likely to include a large number of computers located in workplaces, not just homes, while those

Figure 4.7: Mobile phones per 100 inhabitants in EU member states 2000



Source: Statistics in focus theme 4 – 23/2001 Information Society Statistics, Richard Deiss, Eurostat, 2001

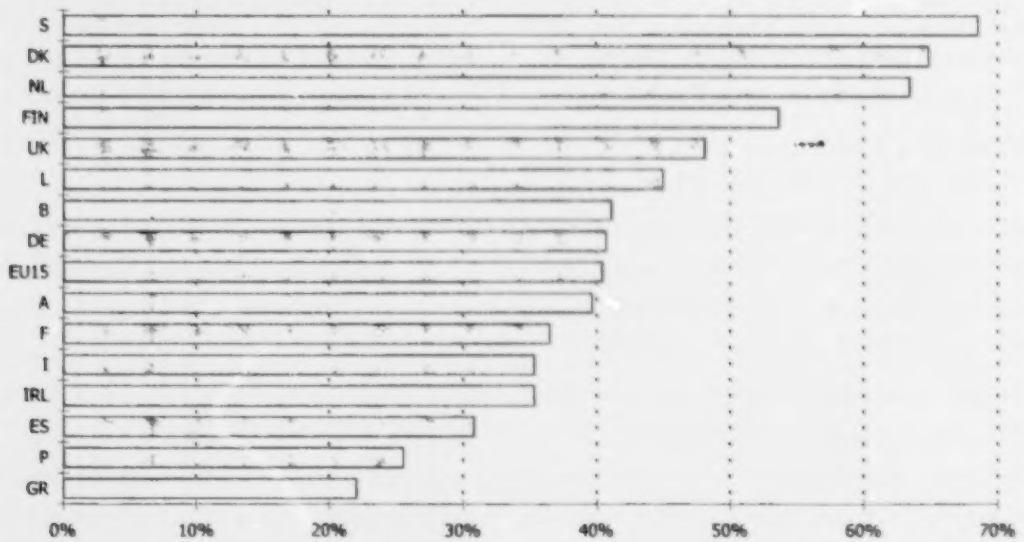
Figure 4.8: PCs per 100 inhabitants in EU member states, 1999



Source: Statistics in focus theme 4 – 8/2002 Information Society Statistics, Richard Deiss, Eurostat, 2002. Figures are taken from the ITU Yearbook 2000.

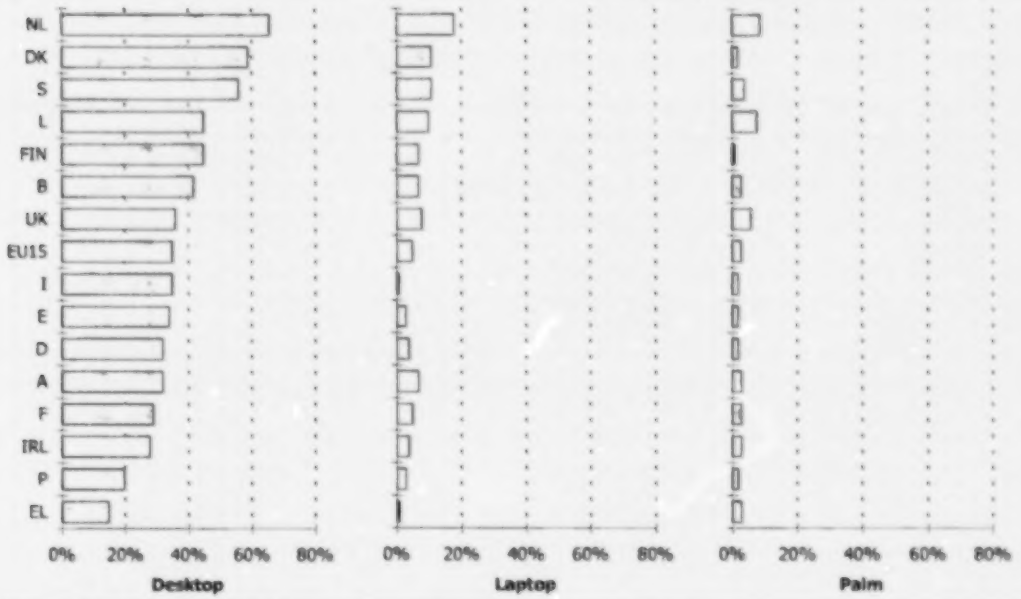
for PC usage are taken from general population surveys. Denmark has a considerably higher penetration of PCs than Ireland according to these figures (Figure 4.8) (41% compared to 32%). There are also considerable differences between EU countries in terms of the percentage of the population who report using a computer (Figure 4.9). Here again, Ireland's figure is quite low.

Figure 4.9: Rate of PC use in the population, 2000



Source: Eurobarometer 54.0, 2000. Base: 15,900 interviews

Figure 4.10: Population (>15) having a computer at home, by type of computer

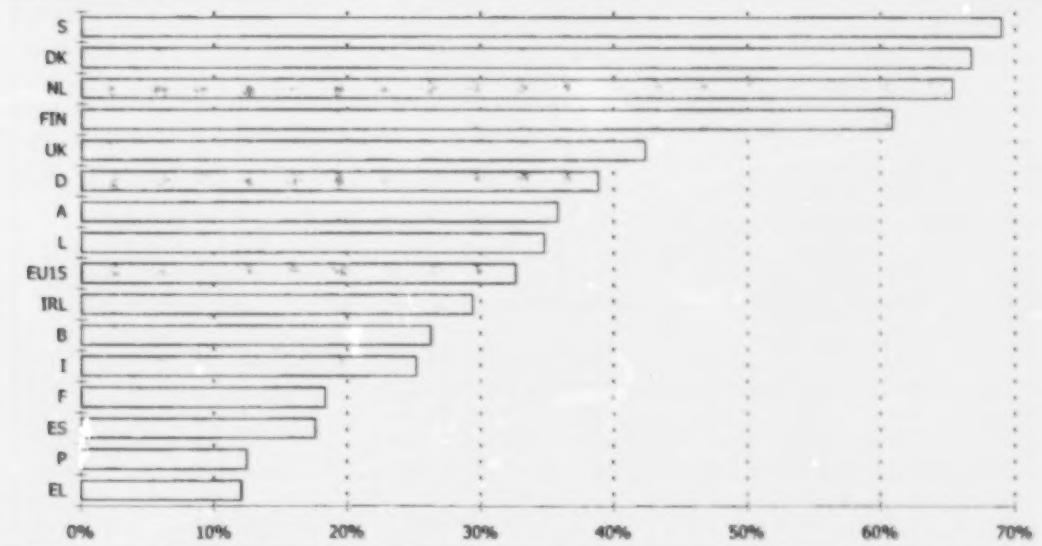


Source: Eurobarometer 53.0 April 2000

Looking at the figures for PCs in the home, the differences are particularly marked. About 28% of Irish homes have a PC compared to 59% of Danish homes (Figure 4.10).

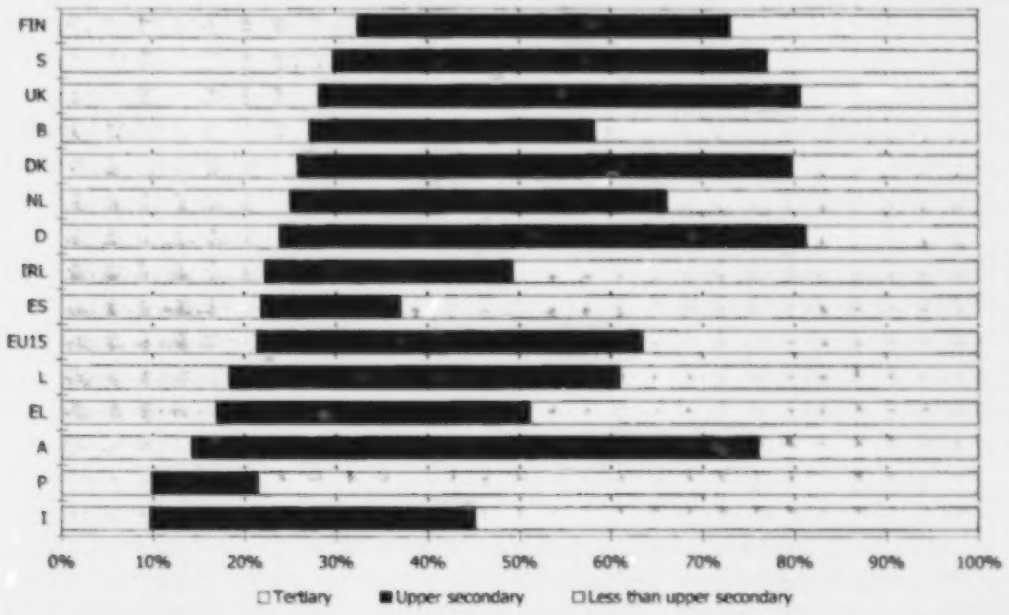
For internet usage Denmark again outstrips Ireland, this time by a wider margin (66.8% compared to 29.4%) (Figure 4.11).

Figure 4.11: Internet users per 100 inhabitants in EU member states, 1999



Source: Statistics in focus theme 4 – 23/2001 Information Society Statistics, Richard Deiss, Eurostat, 2001

Figure 4.12: Highest level of education completed (25-64 years) 2000



Source: Eurostat Statistics in Focus 10/2001 Theme 3. Note that the figures for Ireland are from 1997.

4.2.3 Levels of education and relation to age-group

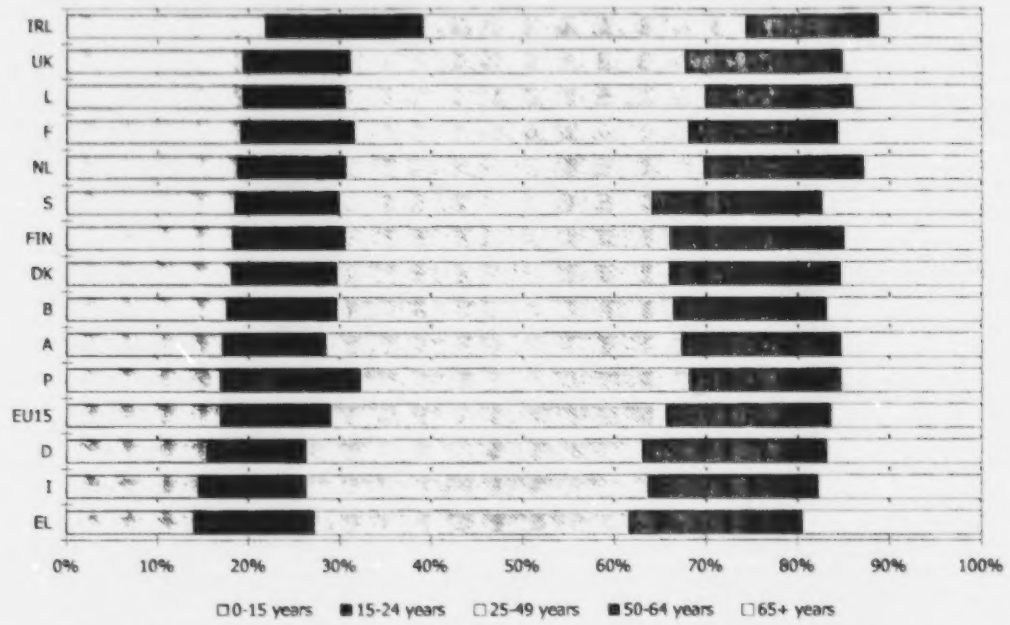
Levels of education in the EU 15 are reported in Figure 4.12. These figures are a little unfair to Ireland as the most recently available Irish figures are from 1997 whereas the figures from other countries are from 2000 although they are not too far out – recently released figures QNHS for Q2 2001 indicates just over 25% of the Irish labour force have achieved tertiary level education. The figures for completion of tertiary level education are above the EU average, and not far below those for Denmark. However, Figure 4.14 shows that Ireland has a relatively high proportion of its population who have not completed secondary level education. In addition, Ireland has the highest proportion of its population aged under 25 of any EU country, at nearly 40% (Figure 4.13).

Figures from the UK LFS in 1998 analysed by the Institute for Employment Studies[1] showed that teleworkers are over-represented compared to the rest of the labour force by 7% for the age group 35-54. In all other age groups they are under-represented. Figures from the UK LFS for 2000 analysed by Ulrike Hotopp confirm this discrepancy at around 6.5% for the age group 35-54[2]. The ECaTT general population survey found that

1 See http://dialspace.dial.pipex.com/town/parade/hg54

2 Hotopp U, 'Teleworking in the UK', *Labour Market Trends*, Vol. 110 No. 6, ONS, 2002. Download from http://www.statistics.gov.uk/downloads/theme_labour/LMT_June02.pdf

Figure 4.13: Population by age distribution, 2000



Source: European Social Statistics, European Labour Force Survey 2000, Eurostat. Unfortunately the published figures are not broken down for the age groups 25-34 and 35-49 which are of particular interest in relation to teleworking

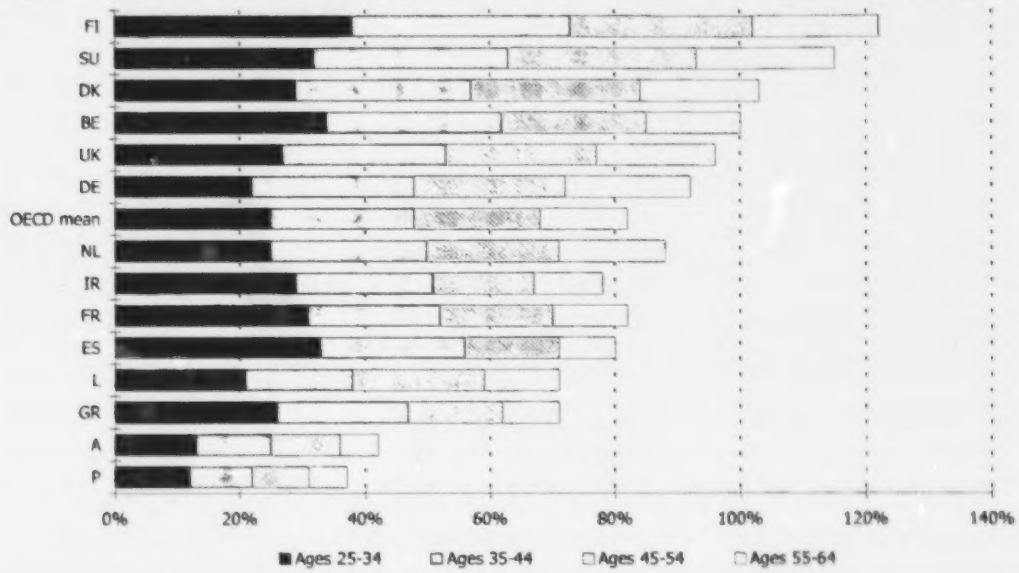
European teleworkers were over-represented in the 30-39 age group by 2.7%, and in the 40-49 age group by 12%. In the US the same pattern is found again. Among non-agricultural workers, US teleworkers are over-represented in the 35-44 age group by 3%, and in the 45-54 group by 5.5%. Additionally, they are also over-represented in the 55-64 age group by 3%[1].

Figure 4.14 shows how countries differ in the age profiles of those who have completed tertiary level education. The combined effect of these factors is that the age of those with tertiary degrees in Ireland does not closely match the usual age-group of teleworkers. The ECaTT general population survey indicated that 59% of regular teleworkers had high level (tertiary) education compared to 27% of its non-teleworker sample. The ECaTT researchers also found that 75% of the teleworkers had managerial responsibility, compared to 44% of the non-teleworkers.

Although the age profile of the Irish population may well have the effect of reducing the pool of people likely to telework compared to other EU countries, the education/age issue can be considered a minor factor, More reliable statistics on this issue will be available in early 2003 from the planned QNHS e-work questions.

[1] U.S. Current Population Survey, May 2001 Supplement

Figure 4.14: Percentage of the population achieving tertiary level education by age, 1999



Source: Education at a Glance 2001, OECD. Available for download at http://www.oecd.org. Figures for Ireland are for 1998. Some bars total over 100% because it is the % of population in each age group that has achieved tertiary level education that is represented.

4.2.4 Availability of workspace

Space available within homes could also have a limiting effect on the amount of home-based e-work that takes place. Ireland has the largest average household size (number of people per house) in Europe apart from Spain, at 3.0 persons per household (the European average is 2.5; the figures for other Northern European countries range from 2.1 to 2.3)[1]. Ireland also has the highest percentage of households consisting of couples with children (65%) in Europe. Figures from 1998[2] indicate that over 40% of Irish households consist of a dwelling with six or more rooms, with an average occupancy of 0.58 persons per room. Unfortunately it has not proved possible to source overall European comparisons on this last point.

If most houses have six rooms and three people in them, and it is assumed that there is a kitchen and living room not used for work,

[1] Size and composition of households, *Living Conditions in Europe Statistical Pocketbook*, Eurostat, 2000. Most country data are from 1997 or 1998.

[2] Quarterly National Household Survey, 3rd Quarter 1998, Housing and Households, Central Statistics Office 1999. Note the counting methodology states 'The number of rooms occupied by a private household is the total number used by the household including a kitchen but excluding a kitchenette, scullery, bathroom, toilet, consulting room, office or shop.'

plus a bedroom each, it appears unlikely from the available information that there is a problem of lack of dedicated workspace available in most Irish households. As trends are towards smaller household sizes, any issue of workspace shortage should also resolve itself to some extent over the course of the next few years. It is interesting to contrast the situation in Ireland with that of Denmark, where the average living area per inhabitant, at 51 square metres, is higher than that of any other European country.[1]

4.2.5 Female participation and work-life balance

Another issue that may be of relevance to the prevalence of individual forms of e-work in Ireland is that of female participation in the labour force. Figures from surveys such as the UK LFS[2], the main EMERGENCE[3] survey and ECaTT[4] indicate that up to three-quarters of e-workers are currently men. However, the vast majority of enquiries received by telework associations are from women who are looking towards e-working as a way of providing family friendly working or to balance work and family commitments.

A recent analysis of the UK LFS figures[5] suggested that the apparent gender imbalance might in fact be a consequence of the proportion of teleworkers who are self-employed since women are generally under-represented in self-employment yet up to half of UK teleworkers are self-employed. Occupational segregation is another factor, with women tending to be under-represented in the managerial and professional occupations most likely to be found in teleworking.

The Eurobarometer survey found that increased productivity was the most common motivation for teleworking in Europe. However, the second highest motivation for teleworking reported, and singled out by 46.3% of the teleworkers interviewed, was that it allowed them to combine work and family life more effectively.

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1 Information provided by Danish Technological Institute, Aarhus, Denmark and the Royal Danish Ministry of Foreign Affairs (http://www.um.dk/english/danmarksbog/kap3/3-5.asp)

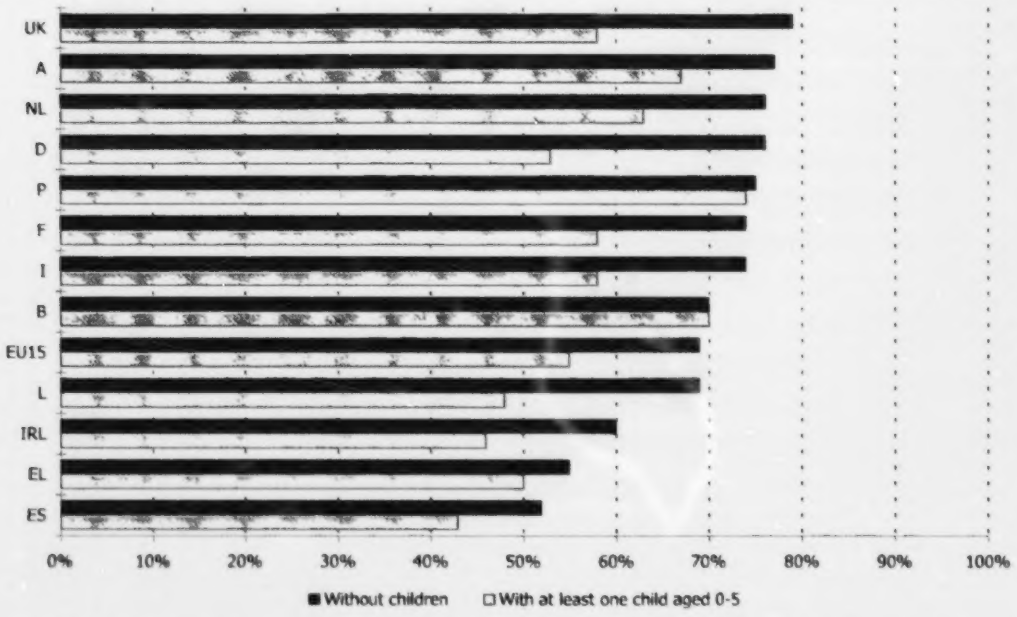
2 Office of National Statistics, Labour Force Survey, 1997-2000, analysis by IES.

3 *eWork in Europe – the EMERGENCE 18-country employer survey*, Huws U, O'Regan S, Institute for Employment Studies, Brighton, 2001

4 Telework data report (population survey) ten countries in comparison, ECaTT project, Empirica, 2000

5 Hotopp U, 'Teleworking in the UK', *Labour Market Trends*, Vol. 110, No. 6, ONS, 2002. Download from http://www.statistics.gov.uk/downloads/theme_labour/LMT_June02.pdf

Figure 4.15: Employment rates of women aged 25-49, 1999



Source: Living Conditions in Europe Statistical Pocketbook, Eurostat, 2001. Note no figures are available for Denmark, Sweden or Finland.

This idea was particularly prevalent in Denmark (77%), Austria (69.8%), former West Germany (63.7%) and the Netherlands (61.5%). Women were more likely than men to hold this view (52.3% compared to 43.3% of men).

Whilst it is a matter of speculation, based on an extrapolation of the Eurobarometer results, it seems that women may be more likely to request e-working for reasons of work-life balance. Companies with few women of child-bearing age might be expected to receive fewer requests for individual e-work arrangements from women than those that have a larger female workforce, leading to lower levels of e-working. These companies might also be more likely to have a male-oriented long-hours, attendance-based work culture where management is less willing to allow e-working arrangements for men or women.

A study of 400 parental couples in France, Italy, Denmark and Ireland throws further light on this issue[1]. Irish men spend more time away from their families due to work than any other nationality, but consider it less acceptable to participate in family-friendly initiatives and feel more pressured to put work ahead of

[1] Fine-Davis M, Fagnani J, Giovannini D, Hojgaard J and Clarke H, *Fathers and Mothers: Dilemmas of the Work-Life Balance – A Comparative Study in Four European Countries*. Final Report to the European Commission and the Irish Department of Justice, Equality and Law Reform, July 2002.

family. This is particularly true of those with high social and economic status, who are likely to be those with high educational status, and therefore fit the current profile for individual e-workers. These attitudes towards family-friendly programmes in Ireland may act as a barrier to the uptake of individual e-working.

The female labour participation rate in Ireland has risen sharply in recent years but is still considerably lower for women with children and has yet to reach the EU average (Figure 4.15, above).

4.3 E-work on office-type premises

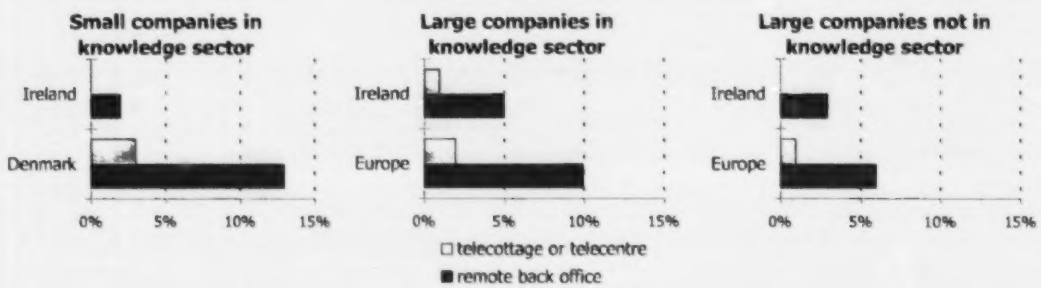
4.3.1 Remote back offices and telecottages

Individualised forms of e-work are not the only options open to employers who wish to use ICTs to get work carried out remotely. Employees may also be transmitting their work over distance from office-type premises, either remote back offices owned by the employer or telecottages, telecentres or other premises owned by third parties.

Figure 4.16 shows how Irish companies compare on this form of e-employment. It should be noted that the definition of 'remote' used in the EMERGENCE survey was 'outside own NUTS1 region'. As one of the EU countries with a relatively small population (along with Denmark, Luxembourg, Portugal and Sweden) the whole of Ireland is defined as a single NUTS1 region, meaning that any location defined as 'remote' can be presumed to be in another country.

Bearing this issue of regional definition in mind, for this form of e-work too, Ireland scores lower than the European average. Large companies in the knowledge sector are half as likely as similar European companies to have a remote back office, whilst

Figure 4.16: Employers' use of e-work by employees in remote back offices or telecottages



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland, 108 small establishments in Denmark.

small companies in the knowledge sector are around five times less likely to have one than their larger European counterparts.

Denmark provides an interesting comparison for small companies in the knowledge sector. Danish companies report that 3% of these companies use employees in telecottages or telecentres, while 13% use employees in remote back offices. The Irish figures are 0% and 2% respectively. Denmark is also classified as all one NUTS1 region so despite this issue, Ireland appears to be falling short on the 'demand' side in its use of this type of e-working.

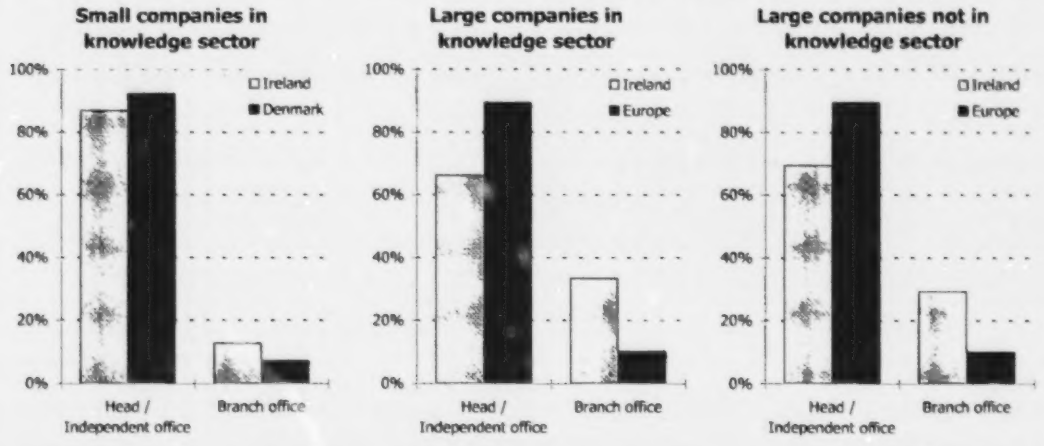
One possible explanation for this difference might be geographical: the result of Ireland being an island. Visiting a 'remote' overseas office involves considerably higher travel costs than those incurred for companies in mainland Europe, where another region can be reached by road or rail, and this may well act as a deterrent to cross-border e-work.

4.3.2 Back offices and head/independent offices

Interestingly, although there are differences in the use of remote back offices, a similar percentage of small knowledge sector establishments in Ireland (87%) and large European establishments (90% in either sector) were head offices or independent offices. But among large establishments in Ireland, the proportion of branch offices (subsidiaries) is three times the European average (Figure 4.17).

This high proportion of large establishments that are branch offices (subsidiaries) may well have an impact on these findings. Because Irish establishments are more likely than average to *be* back offices, they are less likely to *have* them.

Figure 4.17: Head/independent office vs. branch office in Ireland, Denmark and Europe



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Returning to the Danish comparison, small establishments in the knowledge sector in Denmark are about 93% head offices, as opposed to 87% for Ireland. The equivalent figures for large establishments are 73% head offices in Denmark compared to 66% in Ireland. Irish companies are thus more likely to be branch offices than Danish companies.

5. Outsourced E-work

5.1 The demand side

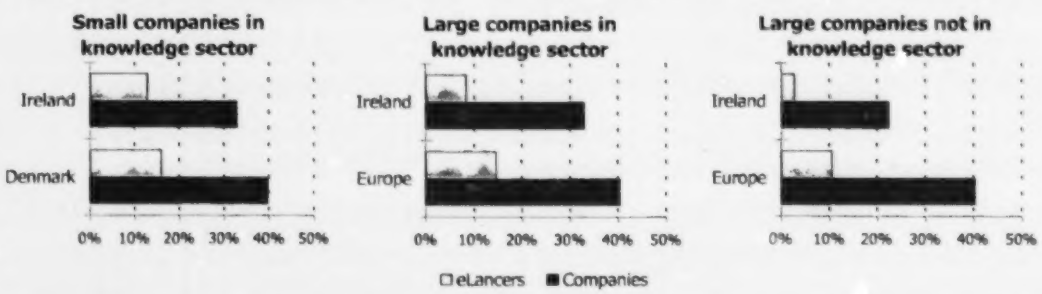
Outsourced forms of e-work involve the use of external suppliers, either individuals or companies, to supply business services. An examination of the evidence shows that here too Ireland exhibits slightly lower than average levels of e-work on the demand side.

Figure 5.1 compares the use of outsourcing to companies and outsourcing to individual freelancers where the work involves the delivery of digitised information over a telecommunications link.

Compared to similar companies in Denmark, small knowledge sector companies in Ireland were marginally less likely to use e-lancers or external company based subcontractors.

E-outsourcing to individual freelancers is practised by 8% of all large knowledge sector companies in Ireland, compared with a knowledge sector European average of 15%. Smaller companies in the knowledge sector within Ireland were more likely to e-outsource to individual freelancers (13%) than their larger counterparts. This might in part reflect a greater need among smaller companies to buy in resources or expertise from external sources because they lack the scale of demand which would make it economic to have a permanent in-house resource.

Figure 5.1: Employers' use of e-outsourcing to e-lancers and establishments: (%) of establishments



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland, 108 small establishments in Denmark

Table 5.1: E-outsourcing by establishments in the knowledge sector to companies

Establishment type	Ireland	Denmark
Small (fewer than 50 employees) %	33	46
Large (more than 50 employees) %	33	45

Source: IES and NOP Small Firms in Ireland Survey, 2001 and Small Firms in Denmark Survey 2001; base 100 small establishments in Ireland; 108 small establishments in Denmark.

The ECaTT establishment survey[1] reported that a mere 7.2% of Irish companies (all types of establishment, not just knowledge sector) were making use of self-employed teleworkers in 1999. The EU10 average figure was 9.2%, and the Danish figure was 17.29% (compared to an EMERGENCE survey figure for all large Danish companies of 18%). These ECaTT figures are broadly in agreement with the EMERGENCE results.

5.1.1 E-outsourcing to companies

When it comes to e-outsourcing to companies the picture is similar (Table 5.1). Around 33% of all companies in the knowledge sector in Ireland outsource at least some of their business activities to other companies using a telecommunications link. This is lower than the European average of just over 40%.

5.2 Why might Irish levels of e-outsourcing be low?

There are several possible explanations for the apparently low rate of demand for e-outsourcing by Irish companies which require further investigation. A low level of outsourcing could be an indicator of a corporate culture which encourages long-term mutual commitment between employers and employees; it could be an indicator of a relatively stable economy with few, or predictable, fluctuations in demand; or it could be a reflection of the particular sectoral structure of the Irish economy. Finally, as with remote back offices, it could also be an effect of Ireland's geographical separation from mainland Europe.

5.2.1 Structure of enterprises in Ireland

Employment within the ICT sector

As noted in section 1.3, there are some difficulties with using the currently available data on employment by sector in relation to ICT employment – an issue which is being tackled in more detail by the STILE project[2]. However, in broad terms it is possible to

[1] *Telework data report (establishment survey) – ten countries in comparison*, ECaTT, Empirica, 2000

[2] STILE project website http://www.stile.be

tease out some clues from sectoral figures about the availability of suitable work tasks for e-outsourcing.

There is a tendency for Ireland to be grouped alongside the UK or the Nordic countries where issues related to the ICT industry are concerned because of its strong ICT base, open economy and industrial relations model. Yet some features of Irish enterprises are rather different from these countries and these may have a bearing on demand for e-outsourcing.

Ireland has the highest share of its labour force in the ICT sector of any EU member state (Figure 5.2) (Note: the ICT sector is not the same as the knowledge sector defined earlier. In the figure below, the ICT sector consists of NACE classifications 30, 31.3, 32, 33.2, 33.3, 51.64, 64.2, 72 which covers manufacture of computer and office equipment, electronics, broadcasting equipment, office machinery, telecommunications, instrument manufacture, computers and related activities).

Eurostat categorises Ireland's manufacturing specialisations as 'electronic components, medical and surgical equipment, office machinery and computers' based on European labour force surveys[1]. However, Ireland has most of its ICT employment in the manufacturing sector, rather than services (Figure 5.3). ICT-mediated outsourcing is more likely to occur in the services sector.

The relatively lower proportion of ICT sector employment in the service sector seems to account for some of the wide difference between Ireland and Denmark in relation to e-outsourcing to companies by knowledge sector companies.

Agricultural employment

Compared to other EU countries, Ireland has moderately high numbers of persons working in agriculture and industry, with a correspondingly lower figure of persons working in the service sector, which is the sector where e-working is most likely to be found (Figure 5.4).

Self-employment

Ireland also has a high proportion of persons in employment who are self-employed (18%), outstripped only by Italy, Portugal, and Greece. Many of these self-employed people are farmers and thus not likely to be e-workers (Figure 5.5).

Here it appears that Ireland tends more towards the southern European model with a higher proportion of self-employed, and also a high proportion of the self-employed working in the agricultural sector.

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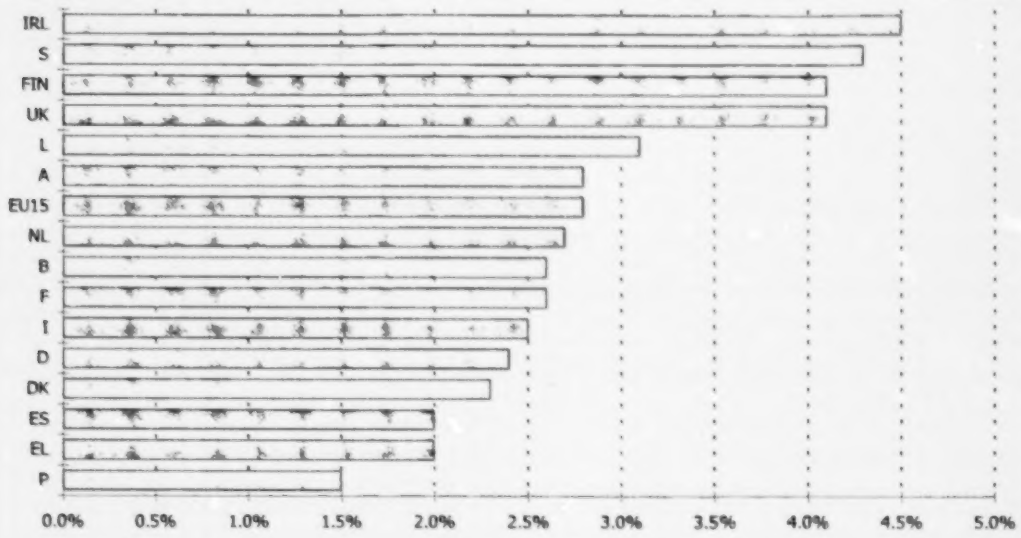
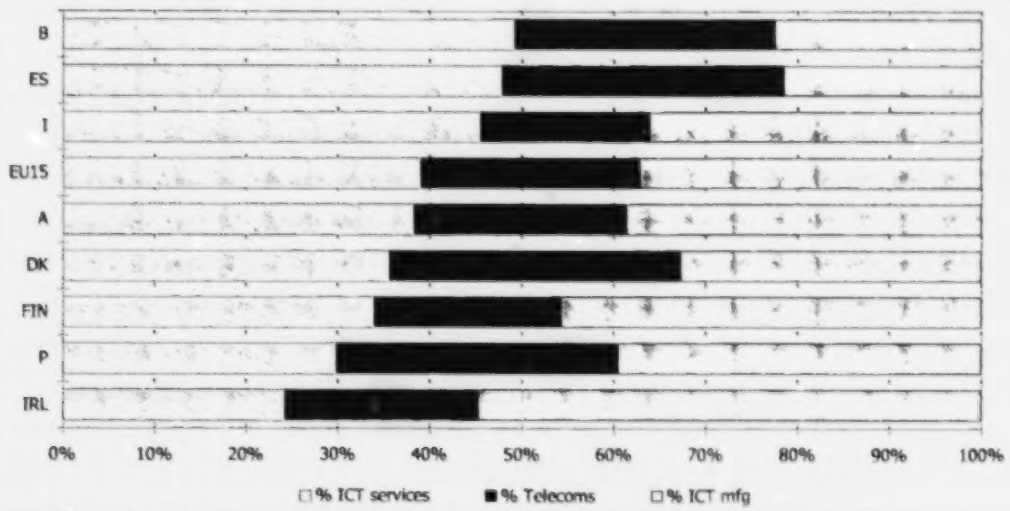
[1] *Europe in Business Statistical Pocketbook*, Eurostat, 2001

Figure 5.2: Share of ICT employment in total employment (%) 1998



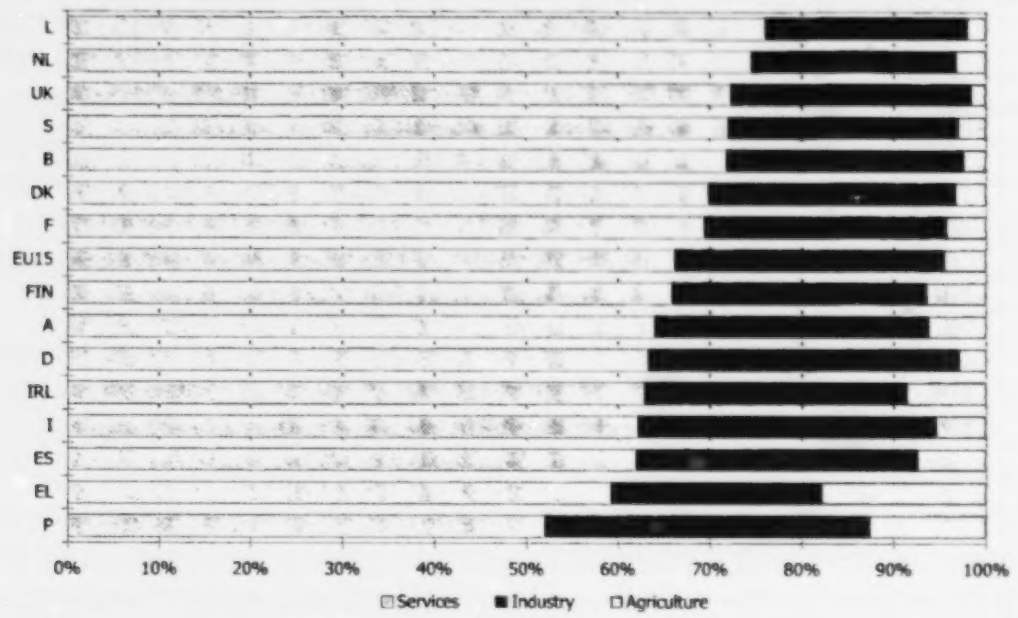
Source: Statistics in focus theme 4 32/2001, Information Society Statistics, Richard Deiss, Eurostat, 2001.

Figure 5.3: Breakdown of ICT persons employed by sectors in per cent of total, 1998



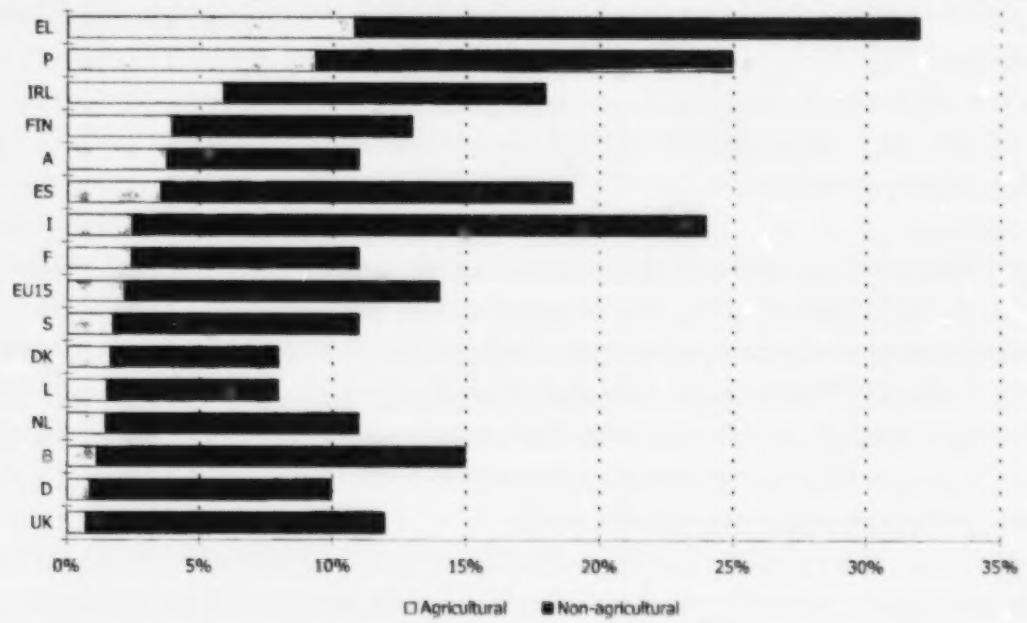
Source: Statistics in focus theme 4 32/2001, Information Society Statistics, Richard Deiss, Eurostat, 2001.

Figure 5.4: Persons in employment by sector (percentage share of total), 1999



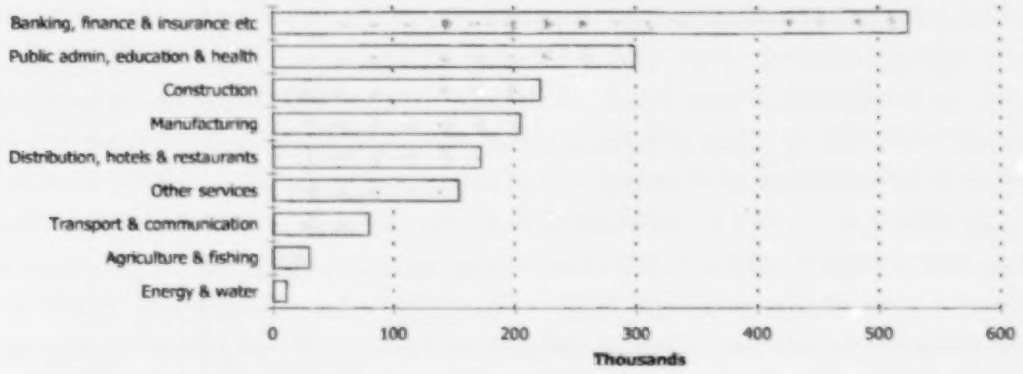
Source: Eurostat European Labour Force Survey. Date for Greece are 1998.

Figure 5.5: Percentage of persons in employment who are self-employed, by sector 2000



Source: Eurostat European Labour Force Survey 2000.

Figure 5.6 : Breakdown of UK LFS figures for people working at or from home, who must use a computer and a telephone to complete their work, by sector, spring 2001



Source: Office for National Statistics, UK Labour Force Survey Spring 2001. Analysis by the Institute for Employment Studies

Organisational size

Eurostat figures[1] indicate that Irish companies are also, on average, the largest in terms of employment size in Europe for both the industrial and services sectors. This masks a highly polarised profile of organisation size, since 98% of all Irish businesses employ fewer than 10 staff. On the other hand, Ireland is the most dependent company in Europe on large companies for employment, with 51% of employment found in large companies, compared to a European average of 34%[2].

Other things being equal, having a high percentage of employment in large companies tends to be an enabler for individual forms e-work. However, these large companies have to be in sectors where job functions are likely to be suitable for e-working (see Figure 5.6). In one such sector, Ireland does show a very large enterprise unit size – finance. The only other sector where Irish enterprise unit size is much above the European averages is industry/energy – where e-working is less likely to be feasible for many job functions.

Cultural factors

One important national characteristic that is extremely difficult to analyse concerns cultural effects on management attitudes to e-working and e-outsourcing. This is a highly subjective and contentious area of research. It seems intuitively obvious that some cultures will tend to have a more positive attitude to

1 *Business in Europe Statistical Pocketbook*, Eurostat, 2001

2 Interim Report of the Small Firms Training and Advisory Committee, 1999, cited in Small Business Failure in Ireland, Fitzpatrick Associates, 2000.

e-outsourcing, while others find the distance element of e-outsourcing disturbing and uncertain.

Hofstede (1980[1] and 1991[2]) carried out a large-scale survey of IBM subsidiary companies in 70 countries involving 116,000 respondents in order to identify cultural differences relating to management.

Countries like Ireland, categorised using Hofstede's indicators as exhibiting *small power distance, high individualism* and *weak uncertainty avoidance*, may be correlated with high levels of e-working. It is unclear whether *masculinity*, an indicator where Ireland scores rather high, would predispose against e-working unless it is also combined with *strong uncertainty avoidance*.[3]

In relating Hofstede's work to Ireland today, and to factors which may affect predisposition towards outsourcing, the first point to be made is that there is probably a considerable difference between the management culture obtaining in multinational companies operating in Ireland, which will tend to have a US-derived culture, and that obtaining in indigenous Irish companies, particularly those outside the knowledge sector.

Additionally, multinational companies, by virtue of being or having branch offices, already have experience of working at a distance from colleagues and customers which is likely to reduce the fear of uncertainty that e-working or e-outsourcing may initially inspire.

There does not appear to be any overwhelming cultural factor in Irish management culture which is likely to act as a barrier to e-working or e-outsourcing. But management culture in Irish indigenous companies has been characterised as relatively 'polychronic' (characterised by informality and multitasking) and tolerant of uncertainty, in contrast with more 'monochronic' cultures (which are more likely to involve a strict compartmentalisation of activities, and agreed timetables). This might lead to a

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1 Hofstede G (1980), *Culture's Consequences*, Sage, London

2 Hofstede G (1991), *Cultures and Organisations*, Sage, London

3 *Small power distance* is characterised by countries where employees expect to be consulted and managers tend to minimise their superiority. Examples include Austria and Israel. *High individualism* is characterised by countries with strong respect for private life and individual self-expression and ambition. Examples include the UK and the US. *Weak uncertainty avoidance* means there is high tolerance for uncertainty and little need for clarity and order. This leads to higher risk taking and greater job mobility. Examples include Denmark and Hong Kong. *High masculinity* is associated with appreciation of material indicators such as size and speed, and little emphasis of feminine aspects such as quality of life and equality. Examples include Australia and Italy.

preference for face-to-face contact and the avoidance of overly rigid rules that could be construed as a barrier to some forms of e-work.

Overall, and it is a speculative approach due to the lack of primary research, Irish-owned companies may have less cultural drive towards individual e-working and e-outsourcing than their equivalents in the Nordic countries, the Netherlands, North America and the UK. This ties in with the finding from the MRBI survey that companies which are subsidiaries are more likely to have individual e-workers than Irish-owned companies (16% as opposed to 12%).

Government policy

Another area where primary research is lacking concerns the effect of government policy and actions on the prevalence of e-working. The Irish government has been a long-term supporter of e-working[1]. In response to the wide public interest in this area, Mr Noel Treacy, TD, when Minister for Science, Technology and Commerce, set up the National Advisory Council on Telework in 1998. In response to the Council's Report, he established the E-work Action Forum in 1999.

The purpose of the Forum, chaired by Mr William Burgess, Managing Director of IBM Ireland, is to provide a focal point for the ongoing development of an environment which will stimulate e-working employment opportunities, and to provide a mechanism to monitor and progress the implementation of the recommendations contained in the Council's Report. Significant progress has been made on this agenda, including:

- a major awareness campaign by Enterprise Ireland aimed at business decision makers to prompt them to consider e-work as a conventional business solution. The campaign has involved radio and press advertising as well as market research, publications and a website, www.ework.ie;
- a Code of Practice on e-working endorsed by IBEC, ICTU and the Government in fulfilment of a commitment in the Programme for Prosperity and Fairness. This Code won a European Teleworking Award;
- the issue by the Revenue Commissioners of a statement of practice which clarifies the tax position of e-working employees;
- the issue by the Department of Environment of a letter clarifying the position of home offices in relation to planning law; and
- encouraging the Central Statistics Office to collect statistics on e-working through the Quarterly National Household Survey, and participation in the STILE research project.

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[1] *Report of the E-work Action Forum 2000* to the Oireachtas (Irish Parliament), Government of Ireland, 2001

Ireland, like Denmark, also has an Information Society Commission. The Irish commission is tasked with benchmarking information society development, carrying out awareness programmes, recommending measures to increase access to ICTs, establishing advisory groups and encouraging Information Society initiatives. The Danish commission has been highly active through tax breaks in encouraging employers to provide their employees with PCs in the home.

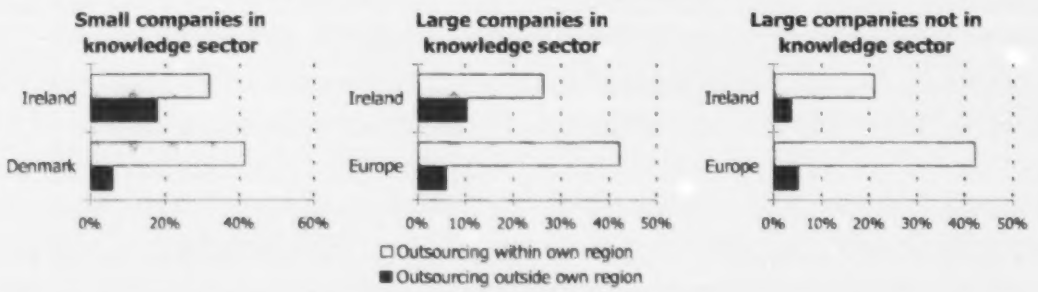
Denmark is also unusual in Europe in having very advanced collective agreements, negotiated at a national level and embracing a high proportion of the workforce, covering telework. This means that home-based and multilocational teleworking are now a regulated form of work with guaranteed rights and protection for the majority of the Danish workforce. It seems likely this may have contributed to the high prevalence of these forms of e-work.

5.3 Location of business services suppliers

As might be expected, companies mainly receive e-outsourced business services from suppliers located within their own region (Figure 5.7). Because companies may also outsource to a number of different suppliers, it is also possible for a single company to be counted as outsourcing both within and outside its own region, leading to higher overall figures than those shown in Figure 5.1

In examining these figures it is important to state again that for Ireland and Denmark, 'outside own region' means outside the country, whereas for many European countries, outside own region can still mean within the same country. The levels of e-outsourcing supplied from within own region are somewhat lower for Ireland in all categories. For small companies in the knowledge sector, 32% of Irish companies use suppliers in their own region compared to 41% of Danish companies. For large companies in the knowledge sector, 26% of Irish companies stay within their own region compared to 42% of European companies. Outside the

Figure 5.7: Location of e-outsourced business service suppliers



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland; 108 small establishments in Denmark

knowledge sector, 21% of large Irish companies use e-outsourcing supplies in the same region compared to 42% in Europe.

Irish companies are more likely to use an e-outsourced supplier outside their own region than their Danish or European counterparts. For small knowledge sector companies, 18% of Irish companies use suppliers from outside Ireland compared to 6% of Danish companies. Among large companies, Irish companies in the knowledge sector source 26% of their requirements from outside Ireland, compared to 6% of European companies. The equivalent figures for large companies outside the knowledge sector are much lower at 3% and 5%.

This suggests that although the majority of these establishments can meet their requirements in-house, there is a significant minority – proportionally higher than the European average – that are integrated into global supply chains.

The total number of cases of outsourcing to a foreign business services supplier is necessarily very small in surveys of this scale, so it is difficult to draw firm conclusions about the most common locations of these suppliers where they occur outside the State. Nevertheless, Table 5.2 and Table 5.3 list, for illustrative purposes, the cases identified in the surveys.

With regards to the larger companies, in all cases the organisations to which companies were outsourcing were in Europe. The most popular location was the United Kingdom, which is unsurprising as the United Kingdom remains Ireland's largest single trading partner.

Table 5.2: Locations of suppliers of business services to Ireland (main survey)

1. United Kingdom
2. Germany
3. Sweden
4. France
5. Netherlands

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001

Table 5.3: Locations of suppliers of business services to Ireland (small knowledge sector establishments survey)

1. United Kingdom
2. France
3. Italy
4. United States
5. India

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001

Interestingly, although the United Kingdom also comes out in the small firms survey as the country from which Ireland's small establishment knowledge sector is most likely to purchase business services, the survey also identified individual cases in the United States and India.

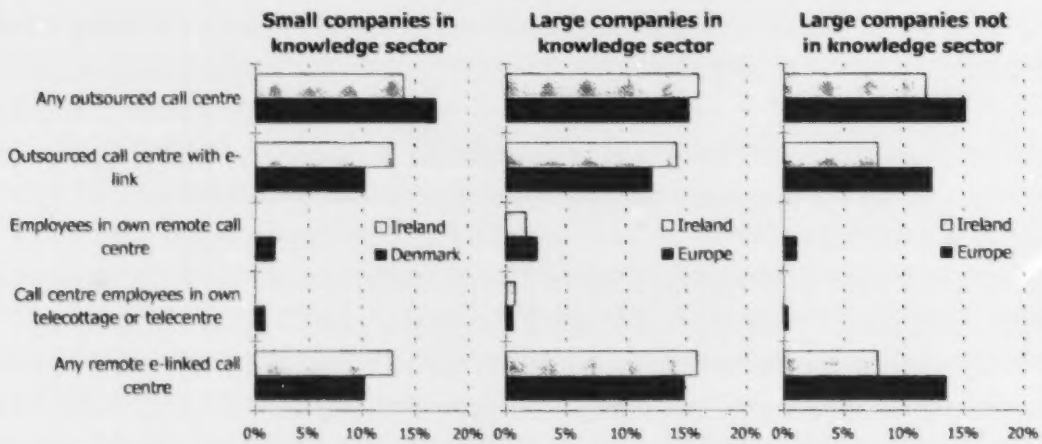
It is tempting to investigate whether these geographical patterns represent a search for scarce high-value expertise or a search for lower costs. Similarly it would be interesting to explore further the extent to which they reflect ownership structure or strategic alliances. Unfortunately, however, the number of cases is too small to permit any such analysis.

5.4 Demand for outsourced call centres

Figure 5.8 looks at the use of outsourced call centres, whether these involve employees working in remote back offices or from premises owned by third parties. It should be noted that because the EMERGENCE survey was only concerned with work carried out at a distance from the establishment, these figures do not include call centre work carried out at the surveyed establishment. It is likely that a high proportion of companies, especially larger companies, may have had their own on-site call centre, which was not captured by the survey.

The use of call centre support by 14% of small establishments is not as surprising as might at first appear. Some small establishments can be branches of large dispersed organisations with a geographically based division of labour and specialist call centres on other sites. Small establishments are also, by definition, less likely to have on-site call centres of any size (if these existed, the establishment would, of course, no longer be small).

Figure 5.8: Use of outsourced call centres



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Independent small establishments are also less likely than larger organisations to have operations of a sufficient scale and stability over time to justify an in-house call centre. For small-scale services, or those for which there are strong fluctuations in demand, an outsourced call centre service is more cost-effective and less risky. By the same token, larger organisations are more likely to be in a position to invest in their own remote call centre. It is interesting that in Ireland it is firms in the knowledge sector which are most likely to do so.

Large companies in the knowledge sector in Ireland had a similar propensity to use outsourced call centres as their European counterparts. Of the large knowledge sector companies in Ireland, 16% used some form of call centre to support their business services, compared to 15% in large knowledge sector companies in Europe.

Relative to the knowledge sector, Irish companies in the non-knowledge sector showed a lower propensity to use outsourced call centres.

The slightly higher levels of use of outsourced call centres with e-links by Irish companies in the knowledge sector is backed up by the recent TOSCA project survey on call centres in Ireland. This survey found a high level of networking in Irish call centres, where 62% of the 50 call centres surveyed were linked to other call centres.[1] The presence of a large number of pan-national call centres in Ireland, many linked to the ICT industry, might also raise awareness among businesses in the knowledge sector of the opportunities that outsourced call centre services can offer.

Some 2% of the Irish workforce are thought to be working in call centres (compared to a European average of just over 1%)[2]. Clearer figures on call centre employment in Ireland will be available in 2003 when the CSO adopts the NACE rev 1.1/CPA 2002 classification, which has a specific category for call centre workers. However, there is little evidence to date of any widespread use of individual e-working in call centres in Ireland ('agents at home'). The TOSCA survey found three centres out of fifty that were experimenting with e-working agents on a limited basis, mainly to provide out of hours service for emergency helplines (utilities), and market research companies using women with children who wanted to work at home to carry out outbound campaigns.

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1 *TOSCA D1 inventory report – Ireland*, TOSCA project 2002; http://www-it.fmi.uni-sofia.bg/TOSCA/

2 *Call Centre and CTI markets in Europe*, Perspective 2003, Datamonitor, 1999

6. Supplying E-work

6.1 Ireland as a supplier

As well as collecting information about the demand for e-work, the EMERGENCE survey also investigated the supply side, of particular interest to those seeking new or expanding markets for business services.

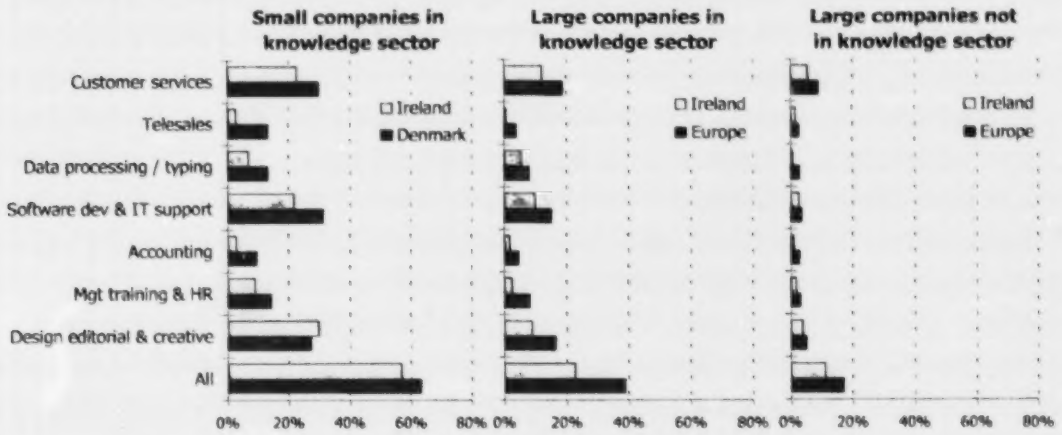
It was the original intention of the researchers to investigate whether Ireland is a net exporter or importer of services and products but unfortunately the number of cases found was not large enough for valid conclusions to be drawn. It is, however, possible to compare both the supply and the demand for internationally outsourced e-services with the rest of Europe.

In general, for larger companies, on both the demand and the supply sides, the Irish figures are well below European averages (see Table A8 in Appendix 1). There is a difference between companies according to whether they operate in the knowledge sector or not. Overall, supply of business services by large Irish knowledge sector companies is particularly low compared to European averages (22% compared to 39%), whereas for large companies outside the knowledge sector the discrepancy is not as large (11% compared to 17%). For both the knowledge and non-knowledge sectors, large Irish companies have a lower propensity to supply business services through a telecommunications link than their European counterparts.

Turning to smaller companies, we find a more positive picture. Figure 6.1 below, suggests that smaller knowledge sector companies in Ireland were over twice as likely as larger ones in Ireland to provide business services to other companies (57% compared to 23%). The most commonly cited business services provided by small knowledge sector companies were design and editorial (30%), customer services (23%) and software development or IT support (22%).

In general, this e-work supply by small businesses is not as strong in Ireland as it is in Denmark, but it should be pointed out that Denmark has the highest general levels of e-work supply in Europe. We do not have comparisons for small businesses elsewhere in Europe yet, so Ireland is not necessarily below the

Figure 6.1: E-work by business function (supply side)



Source: IES and NOP EMERGENCE Survey, 2000; Small firms in Denmark Survey, 2001; and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland; 108 small establishments in Denmark

European average in this respect. In the case of creative services, Ireland exhibits an even stronger level of supply than Denmark.

This suggests that Ireland has a vibrant small business services supply sector. The wider EMERGENCE European survey[1] provides us with a broader picture of supply and demand for these business services. However, it was a one-off survey and cannot therefore provide reliable evidence of growth trends (although the EMERGENCE project has attempted to model these trends elsewhere[2]).

The wider picture tells us that there is a high demand for these services right across Europe. Demand is especially strong in proportionate terms in the Accession States of Central and Eastern Europe and in Italy, Spain and Greece and in absolute terms in the large economies such as the UK and Germany. Moreover, a high proportion of this demand is met by small employee groups, with 22.9% of cases where numbers were known involving five workers or fewer, 9.1% involving between six and ten, 6.6% involving 11-25 workers and 3.9% involving 25-50 workers, giving a total of 42.5% of supply originating in employee groups of fewer than 50.[3]

Small firms in this sector, in particular in the fields of customer service, software development and support and creative functions,

1 Huws U, O'Regan S, *eWork in Europe: the EMERGENCE 18-country Employer Survey*, Institute for Employment Studies, 2001

2 Bates P, Huws U, *Modelling eWork in Europe*, Report 388, 2002

3 Huws U, O'Regan S, *eWork in Europe: the EMERGENCE 18-Country Employer Survey*, IES, Brighton, 2001

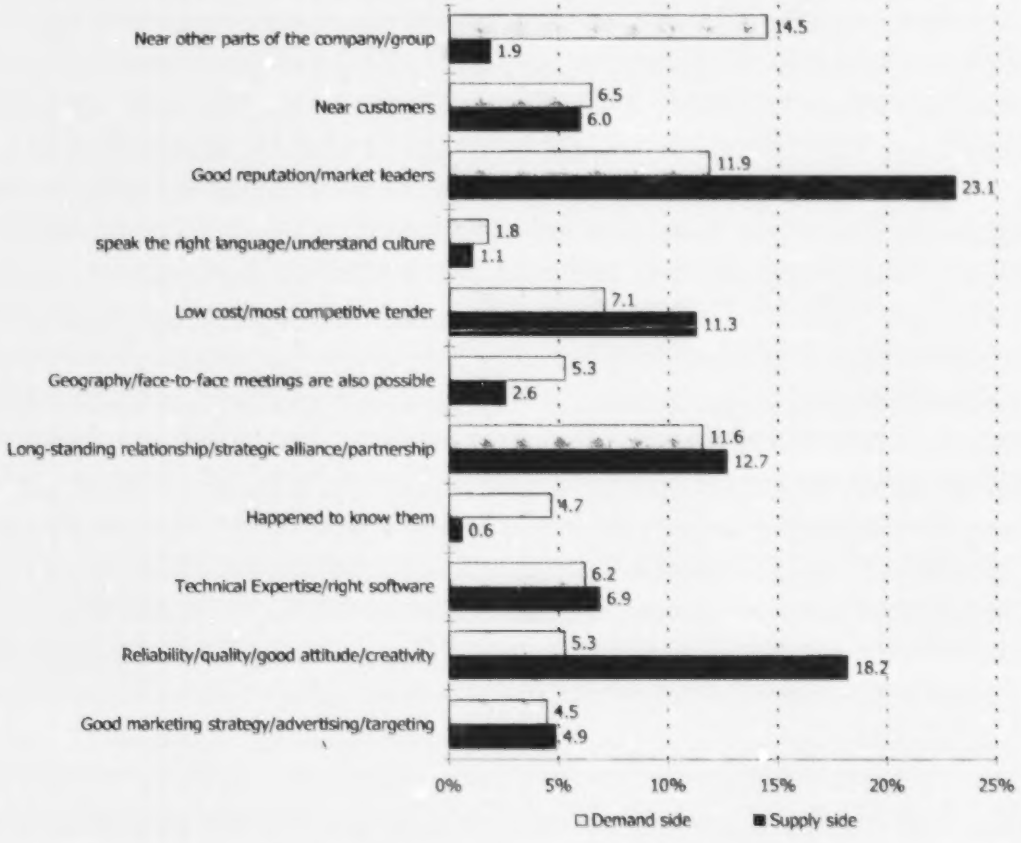
have a market opportunity open to them through the provision of e-services which could provide further growth in the Irish economy. Put together with the strength of the Irish supply side in this sector, this suggests a market potential that is no doubt enhanced by such factors as use of English as the working language.

6.2 Reasons for choosing a supplier

The main EMERGENCE survey looked at the reasons for choice of location of outsourced services on both the supply and demand sides by business function, information that may be of use to Irish companies looking at these markets.

For the customer service function, great value is placed on the supply side on quality and good reputation. A relationship of trust, proximity to customers, and technical expertise are valued

Figure 6.2: Reasons for choice of location for customer services – supply and demand side

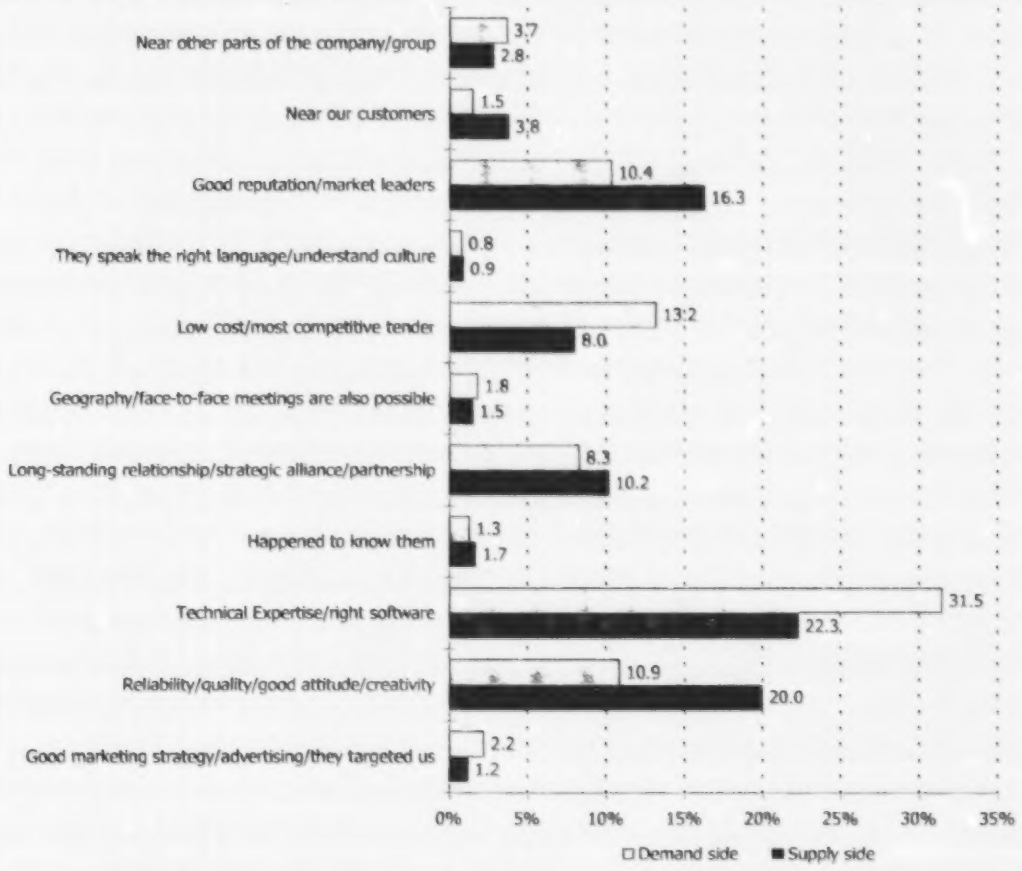


Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU(15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base = 337, Supply Base = 3,147

more or less equally. However, there is a substantial preference on the demand side for customer service functions to be located close to other parts of the company or group.

By contrast, for software development and support functions, by far the most important consideration – not surprisingly – is technical expertise, which constituted 31.2% of the reasons mentioned on the demand side and 22.3% on the supply side. This is buttressed by a requirement for quality, reliability and a positive attitude (10.9% and 20% of reasons respectively). The need for these qualities is balanced by a search for low cost, which constituted 13.2% of reasons cited on the demand side, though only 8% on the supply side.

Figure 6.3: Reasons for choice of location for software development and support – supply and demand side



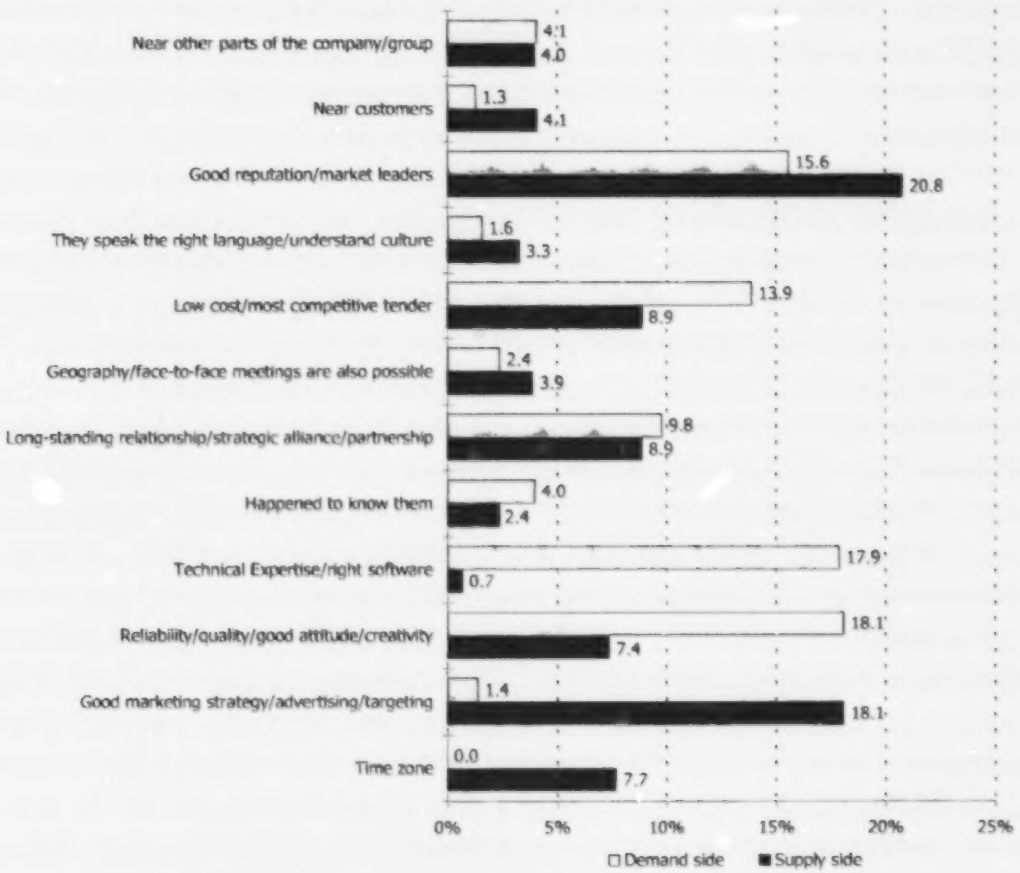
Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU(15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base = 2,025, Supply Base = 1,383

The pattern illustrated here indicates that suppliers tend to overestimate the value of their existing relationship with their customers and the quality of their work, and to underestimate the value of their price competitiveness when compared with the assessment from the demand side.

In relation to creative functions, good reputation and high quality both feature as important reasons, but so also do low cost and a longstanding relationship. On the demand side technical expertise is also rated highly, although this hardly figures on the supply side.

On the supply side, providers of these services credit good marketing with making a substantial contribution to their success in gaining contacts. This is also the only business function in which time zone features as a significant reasons for the supply side. The disparity for these two reasons between supply and

Figure 6.4: Reasons for choice of location for creative services – supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU(15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base = 948, Supply Base = 1,904

demand may be due to the markets concerned. A number of the suppliers of creative services interviewed here were supplying to customers outside the EU for whom time zone may have been an important criterion. Reaching these customers may also only have been possible by determined marketing efforts.

6.2.1 Location of customers for business services

Table 6.1 lists, in order of importance, all the foreign locations mentioned for customers of Irish e-service suppliers. The numbers of cases in the survey were too small to make it possible to analyse these data in any meaningful way and they are reproduced here for illustrative purposes.

Perhaps because of the use of the English language, or perhaps for reasons of ownership or strategic alliance, the United States and the UK appear relatively high on the list.

It is interesting to note that the United States is outranked by a number of European countries as a customer for larger companies, and by the UK for smaller ones too. This suggests that Europe still forms the main market for Irish knowledge-based services and indeed constitutes, as noted above, a very large market indeed.

Table 6.1: Locations of foreign customers for Irish e-services, in order of number of incidences

Large companies not in the knowledge sector	Large companies in the knowledge sector	Small companies in the knowledge sector
United Kingdom	Germany	United Kingdom
Germany	Portugal	United States
Spain	United States	Sweden
United States	United Kingdom	Switzerland
Norway	France	Bermuda
Russia	Netherlands	Canada
	Switzerland	India
		Singapore
		Austria

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7305 large establishments in Europe; 281 large establishments in Ireland; 100 small establishments in Ireland

7. Conclusions

Several conclusions can be drawn from these findings:

- Levels of supply and demand of all forms of e-work are lower in Ireland than for the EU average.
- Irish levels of e-work are also substantially below those found in Denmark for small companies in the knowledge sector. The one exception to this pattern is the supply of outsourced services in the design, editorial and creative sector, where the Irish figures exceed the Danish figures.
- The pattern observed elsewhere in the EMERGENCE survey for individual forms of e-work is also visible in Ireland. Small companies are more likely to use fully home-based e-workers, while larger companies not only tend to have more e-workers, but tend to use multilocational forms of e-working.

There are a number of factors which may explain these results. These include:

- Levels of ICT penetration in businesses and homes
- Structure of the Irish economy
- Structure of the Irish labour force
- Irish companies are more likely to *be* branches (subsidiaries) than to *have* them, reducing the overall level of demand for e-work
- Ireland's relatively greater geographical separation from the European mainland.

However, the results of the main EMERGENCE survey indicate significant levels of e-outsourcing are already taking place in three business functions:

- Design/editorial/creative services
- Software development and technical support
- Customer services

In addition, there appear to be opportunities to increase the level of individual forms of e-working in the financial services sector. The average size of company in this sector is larger in Ireland than the

Table 7.1: Projections of telehomeworkers, multilocational e-workers and e-lancers for the EU, 2010

	Current figures 2000	Employment growth scenario	ICT diffusion scenario	Employment growth and ICT diffusion scenario
Telehomeworking employees	810,000	950,000	2,750,000	3,170,000
Multilocational e-workers (person equivalent)	3,700,000	4,310,000	12,463,000	14,332,000
e-lancers (providing business related services)	1,450,000	1,790,000	2,490,000	3,040,000
E-enabled self-employed	3,080,000	3,080,000	6,580,000	6,580,000
Total estimates of individualised e-working	9,040,000	10,130,000	24,283,000	27,122,000

Source: EMERGENCE analysis, 2002

European average, a feature which is related to higher levels of e-working. Most work in this sector is ICT-based. The financial services sector also has a high proportion of female employees who may be interested in e-working for reasons of work-life balance.

The EMERGENCE project has done some work on modelling the likely development of e-working in Europe[1], and the vital importance of ICT diffusion with organisational change is clear from these projections. If employment growth and ICT diffusion with organisational chance both occur, e-working by individuals is likely to triple over the next decade.

Despite starting from a low base, it seems likely on demographic grounds that individual forms of e-working may well grow at a faster rate in Ireland than in some other European countries (Figure 7.1).

Ireland has a larger proportion of younger people, who are more likely to be IT literate, than other EU member states. In terms of Internet use by young people, Ireland tends to follow northern European rather than southern European trends (Figure 7.2). Ireland also has a respectable ratio of PCs to students in schools (Figure 7.3), and a higher proportion of third level graduates in computing than any other OECD country (9.5%)[2] (Figure 7.4).

The proportion of the population that receives tertiary education is rising. The rate of female participation in the labour force is rising. The percentage of the economy that is in the service sector

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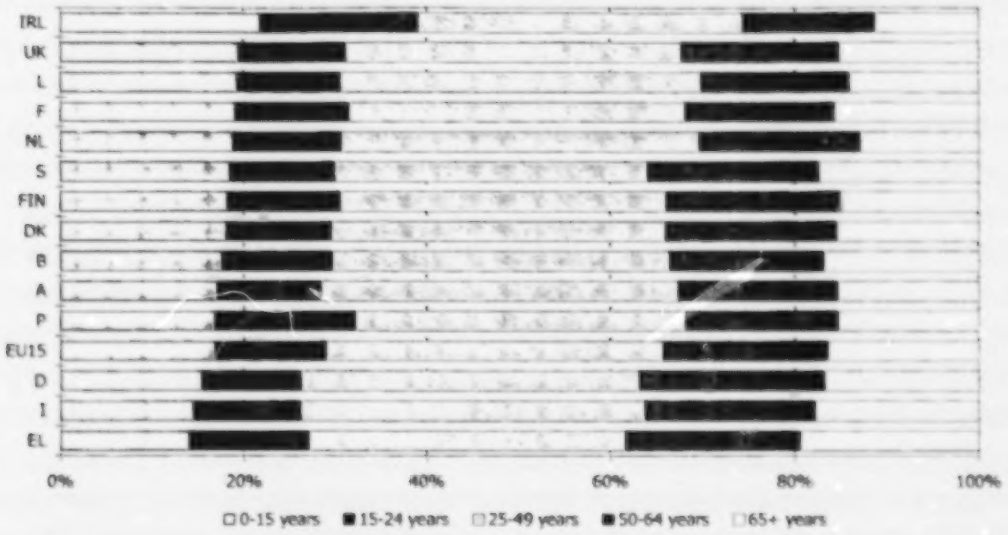
1 Bates P, Huws U, *Modelling eWork in Europe: Estimates, models and forecasts from the EMERGENCE project*, Report 388, 2002

2 Vickery, Graham, *Highlights from OECD Information Technology Outlook 2002*, presentation at the VIONA Labour Market Statistics conference, University of Ghent, 29/5/2002.

Figure 7.1: Population by age distribution, EU member states

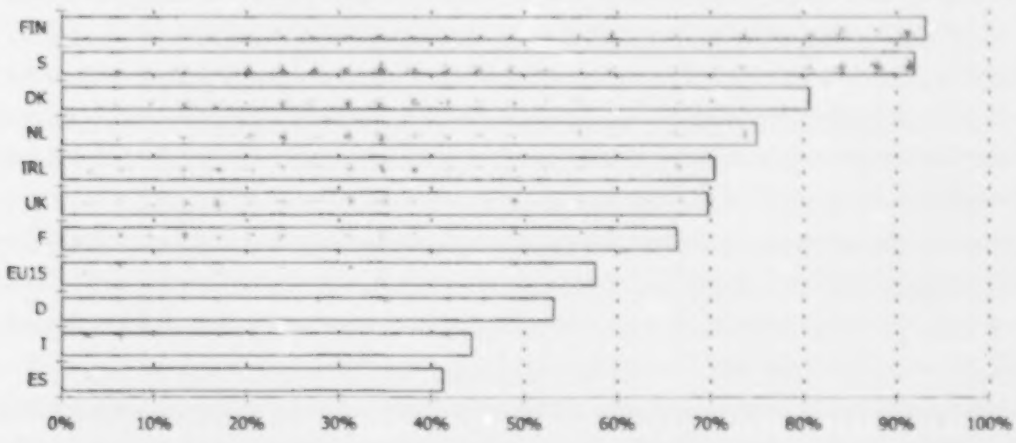


Source: European Labour Force Survey 2000, Eurostat

is rising. Household sizes are falling, but not sizes of houses, providing more space for home offices.

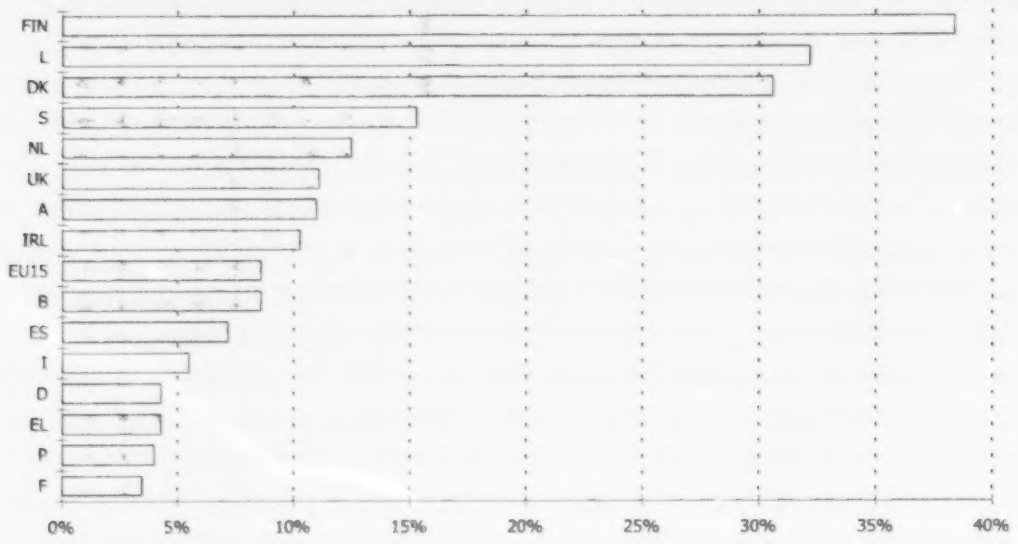
There can be little doubt that, if actions to promote ICT diffusion continue in Ireland, e-working growth rates will increase despite some structural aspects of the Irish economy and labour force which seem to have limited demand and supply of e-work to date.

Figure 7.2: Share of persons aged 18-29 who use the Internet



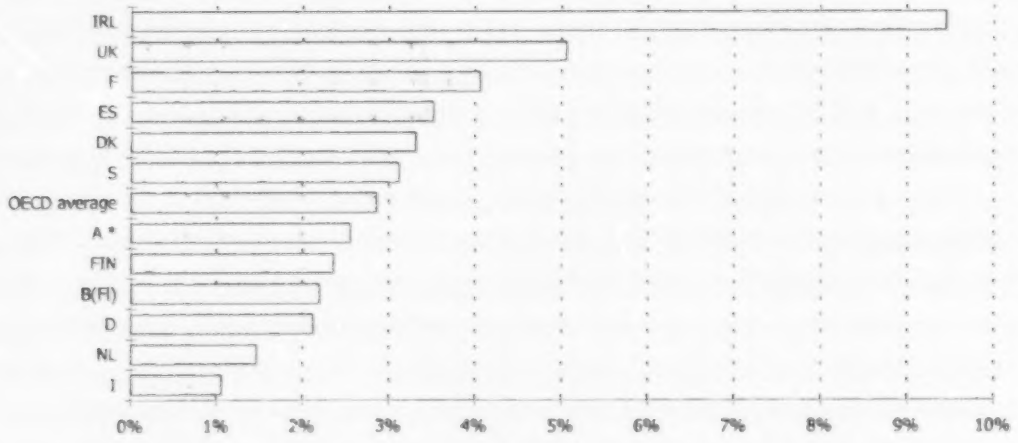
Source: Living Conditions in Europe Statistical Pocketbook, Eurostat, 2001

Figure 7.3: Number of computers per 100 pupils



Source: Business in Europe Statistical Pocketbook, Eurostat, 2001

Figure 7.4 Computer graduates as a percentage of all tertiary level graduates, 1999



*Source: OECD Education Database available online at http://www1.oecd.org/scripts/cde/viewbase.asp?DBNAME=edu_uoe. Data refers to refers to first stage of tertiary (A + B when available) [ISCED 5] + advanced research programmes [ISCED 6]. 'Computing' refers to field of study ISC 48. *Figure for Austria does not include first stage tertiary B education.*

Appendix 1: Tables

Table A1: E-work demand in Ireland: all functions and types of e-work

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Customer services	5	23	3	13	2	8
Telesales	3	11	3	4	0	2
Data processing/ Typing	5	21	1	5	2	4
Software dev & IT support	24	27	22	27	18	30
Accounting	5	10	2	4	1	3
Mgt training & HR	2	7	10	9	4	9
Design editorial and creative	14	22	21	23	9	18
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Table A2: Employers' use of individualised forms of e-work by employees (% of establishments)

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Fully home based teleworkers	5	15	1	3	1	2
Multilocational e-workers	5	18	12	18	3	8
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

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Table A3: Employers' use of e-work by employees in remote back offices or telecottages

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Telecottage or telecentre	0	3	1	2	0	1
Remote back office	2	13	5	10	3	6
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Table A4:. Percentage of head offices

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Head/independent office	87	93	66	90	70	90
Branch office	13	7	34	10	30	10
Totals	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Table A5: Employers' use of e-outsourcing to freelancers and companies. (% of establishments)

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
E-lancers	13	16	8	15	3	11
Companies	33	40	33	40	23	41
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

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Table A6: Location of suppliers of e-outsourced services

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledg e sector in Ireland	Large co.s not in knowledge sector in Europe
Outsourcing within Ireland/ own region	32	41	26	42	21	42
Outsourcing abroad/outside own region	18	6	10	6	3	5
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Table A7: Use of outsourced call centres in Ireland, compared with in-house remote call centres

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Any outsourced call centre	14	17	16	15	12	15
Outsourced call centre with e-link	13	10	14	12	8	12
Employees in own remote call centre	0	2	2	3	0	1
Call centre employees in own telecottage or telecentre	0	1	1	1	0	0
Any remote e-linked call centre	13	10	16	15	8	14
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

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Table A8: all e-work in Ireland by business function (supply side)

	Small co.s in knowledge sector in Ireland	Small co.s in knowledge sector in Denmark	Large co.s in knowledge sector in Ireland	Large co.s in knowledge sector in Europe	Large co.s not in knowledge sector in Ireland	Large co.s not in knowledge sector in Europe
Customer services	23	30	12	19	6	9
Telesales	3	14	1	4	2	3
Data processing/ Typing	7	13	6	8	1	3
Software dev & IT support	22	32	10	15	3	4
Accounting	3	10	2	5	1	3
Mgt training & HR	9	15	3	8	2	3
Design editorial and creative	30	27	9	17	4	5
All	57	64	22	39	11	17
Number in sample	*100*	*108*	*62*	*1,422*	*239*	*5,846*

Source: IES and NOP EMERGENCE Survey, 2000 and Small Firms in Ireland Survey, 2001; base: 7,268 large establishments in Europe; 301 large establishments in Ireland; 100 small establishments in Ireland

Appendix 2: Other Irish Surveys

A summary of results of other Irish surveys on demand for e-work by business function.

Telemart 1994

A survey of 31 companies in the banking/financial, software and chemical/pharmaceutical sectors was undertaken by Cork Teleworking Centre for the Telemart EU project in 1994. This identified the following ranking of tasks suitable for outsourced teleworking:

Task	%
Production of manuals, catalogues	44
Translation	42
Market research	35
Programming/software development	33
Technical support	32
Graphic design	27
Presentation	26
Advertising	25
Secretarial services	24
Sales	24
Travel reservations	22
Exhibition services/displays	20
Customer service enquiries	15
Bookkeeping	10
Statistics, customer records	10
Production planning/logistics	9
Quality control	5
Personnel administration	5
Spare parts, stores	5

Telefutures 1996

This was a first attempt to survey teleworking in Ireland, funded by the main telephone operator and a government business development agency. The survey gives a general introduction to teleworking, the results of two surveys, some commentary on drivers and barriers to teleworking, and recommendations for actions to promote teleworking.

1,000 employers were also surveyed and 68 replies received. 25% of respondents said they already allow staff to telework. 82% were concerned about issues of security and confidentiality relating to teleworking but 56% would be satisfied in their concerns by a written confidentiality agreement with the teleworker. 81% reported that given the choice, they would prefer to use teleworkers located within 25 miles of their premises. There was no difference between foreign and Irish owned companies in their attitude to allowing staff to work from home. With regard to the tasks likely to be teleworked, Telefutures (1996) gave the following breakdown:

Task	Now %	In a year %
Translations	26	12
Design and production of customer/internal literature	21	19
Technical support	21	10
Market research	18	10
Software development	16	13
Data capture from paper records	12	26
Telemarketing/telesales	10	6
Production and maintenance of quality manuals	9	28
Maintenance and preparation of mailing lists	9	16
Order processing	7	16
Handling basic customer enquiries	1	12

The Shortest Route to Work 1998

Report of a survey of 503 Dubliners and 150 managers (chief executives or HR managers) carried out in summer 1998. The survey found company size was no guide to homeworking in Ireland, but that companies with more than 200 employees were the most likely to have homeworkers (38%). This survey also noted that Irish privately owned companies were slowest to adopt telecommuting (17%) compared to 37% of subsidiaries of overseas companies. This is partly sectoral – 90% of retail/wholesale companies are Irish owned, and this is the sector which reports least teleworking apart from the primary sector (NACE codes A-C, agriculture, forestry, fishing, energy).

The breakdown of teleworking activities was as follows:

Activity	%
Administration/clerical	48
Service support	22
Other	21
Sales support	19
Software development	15
Market research	12
Telemarketing	9
Secretarial duties	9
Accounts	9
Design	8
Typing	8
Translations	6
Technical support	4
Data capture/processing	4

Shortest route went further and analysed the most likely tasks to be teleworked in each industry sector:

Sector	Most likely task to be teleworked	% of companies reporting
Manufacturing/construction	Administration/clerical	31
Retail/wholesale distribution	Sales support	40
Financial services	Typing	50
Financial services	Accounts	46
Transportation	Sales support	54
Computer hardware/software and dp	Administration/clerical	48

Shortest Route found 56% of those who would not like their staff to telework felt it was impractical or the nature of their business would not allow it. Other barriers scoring over 10% included lack of supervision (13%) and lack of communication (12%).

The other notable feature of the survey is the lack of interest in serviced offices and centres or telecentres close to home. The employer survey indicated 85% would not be interested with 5% fairly interested and 5% very interested.

ECaTT 1999

The European research project ECaTT surveyed 547 people in Ireland (7,700 around Europe in total) and 347 establishments during February and March 1999 by telephone. 32.6% of Irish

establishments were carrying out teleworking according to ECaTT compared to an EU10 average of 29.7%. When supplementary teleworking (outside normal office hours) was added in, the figure rose to 39.09% of establishments compared to a 35.8% EU10 figure.

Type	Ireland actual %	EU10 actual %
Homework permanent	6.34	5.4
Homework alternating	10.11	11.8
Self-employed working for respondent establishment only	3.27	4.5
Self-employed working for several establishments	5.37	6.6
Mobile work	23.14	20
Supplementary Telework	26.99	21.4

Type of job teleworked (% of establishments practising telework)

Task	Ireland %	EU10 %
IT and programming	34.49	42.30
Distribution and customer services	47.05	40.20
Support — data entry, WP	37.29	40.40
Secretarial	24.13	27.40
Clerical	34.41	38.80
Other professional	37.74	48.40
Managerial	51.79	44.80

Size distribution (according to number of teleworkers but excluding mobile teleworkers) – units % of establishments practising telework.

Number of teleworkers	1-9	10-19	20-49	50-99	100+	dk/na	Total
Ireland	73.26	7.52	5.66	4.90	0.47	8.20	100.0
EU10	51.71	14.48	12.17	6.43	5.96	9.24	100.0

MRBI 2001

These are the results of two surveys carried out in September 2000 (sample size 75 e-working companies, 428 non-e-working companies) and October/November 2001 (sample size 139 e-working companies, 488 non-e-working companies). NOTE 'Each included a booster sample of e-working companies'. On direct questioning MRBI said the booster sample was weighted on the basis of the existing sample. In addition, the second sample was split into two – clients of the Enterprise Ireland development agency, and a general sample taken from MRBI's listings. The sample sizes were:

Enterprise Ireland 2001	41
MRBI 2000	75
MRBI 2001	139

10% of businesses in 2000 were using e-working and this grew by 20% to 12% in 2001.

When the 2001 survey results were weighted for company size and sector, they indicated that companies with over 50 employees were more likely to have e-workers (36%), those located in Dublin were more likely to have e-workers (18%), those in the computer or IT sector were more likely to have e-workers (33%), and that companies which were supported by Enterprise Ireland were more likely to have e-workers (19%). Companies in the software sector are three times more likely to use e-working than the national average. Companies which were subsidiaries (such as multinationals) were more likely to use e-working (16%).

Companies that were e-working reported 55% unchanged numbers of e-workers compared to a year ago, 40% with more and 3% with less. Companies reported high levels of satisfaction with e-working, with 90 to 97% reporting it very successful or fairly successful over the three samples.

However, when the 2001 companies were asked: 'Does anyone in your company have a modem and computer in their home which they use to work from home by mutual agreement with the employer for some or part of the working week', although the overall figure for those using e-workers did not alter, a substantial proportion of the individual companies changed their answers. Of those who answered 'no' to the original e-working question, 14% answer 'yes' to the modem and computer question. Of those who answered 'yes' to the original e-working question, 16% answer 'no' to the modem and computer question.

The original e-work filter question ought to result in a substantially higher proportion of companies replying 'yes' because we know that e-workers who are home-based (those picked up in the modem and computer question) constitute only a small proportion of the e-workers who should be picked up in the main filter question, which should also include mobile e-workers.

Interestingly, looking at the weighted MRBI figures in relation to full-time employees, there is a size-related difference in those companies which change their response depending on how the question is asked. For companies which say yes to the eworking questions, but no to the modem and computer question (ie they did not in fact clearly understand what e-working might entail but answered yes to the question anyway), 22% are companies with less than 50 employees while only 5% are companies with over 50 employees. For companies which say no to the e-working question but yes to the modem and computer questions (ie, they did not initially understand the term e-working and replied no,

but when given more specific information replied yes) , only 12% are from companies with less than 50 employees while 37% are from companies with over 50 employees.

Similarly, when the figures are broken down according to ownership (Irish-owned or subsidiary), those who answer yes to the eworking question but no to the modem and computer question are disproportionately indigenous companies (20% compared to 1% of subsidiaries). Those who answer no to the eworking question but yes to the modem and computer question are more likely to be subsidiaries (30% compared to 11% of Irish-owned companies).

It appears that smaller companies and Irish-owned companies may be more likely to guess what eworking means under the MRBI definition than larger companies and those which are subsidiaries. This may imply that the trend towards larger and subsidiary companies being more likely to have e-workers is larger than it appears in many surveys, depending on how the e-working question is phrased.

Again, the number of full-time employees involved in this survey was small. Of the 12% of companies reporting any e-working, 32% had just one employee e-working, 18% had two employees, 21% had 3-5 employees and 21% had more than 6. Figures for part-time employees were substantially lower again.

The job functions which were e-worked were as follows:

Function	EI sample (%)	General sample 2001 (%)
Sales	56	55
IT/Computer support	49	43
Engineering	39	24
Finance	34	45
Production management/ supervision	27	24
General admin	22	37
Secretarial	15	25
General operatives	10	8
Legal	7	6

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